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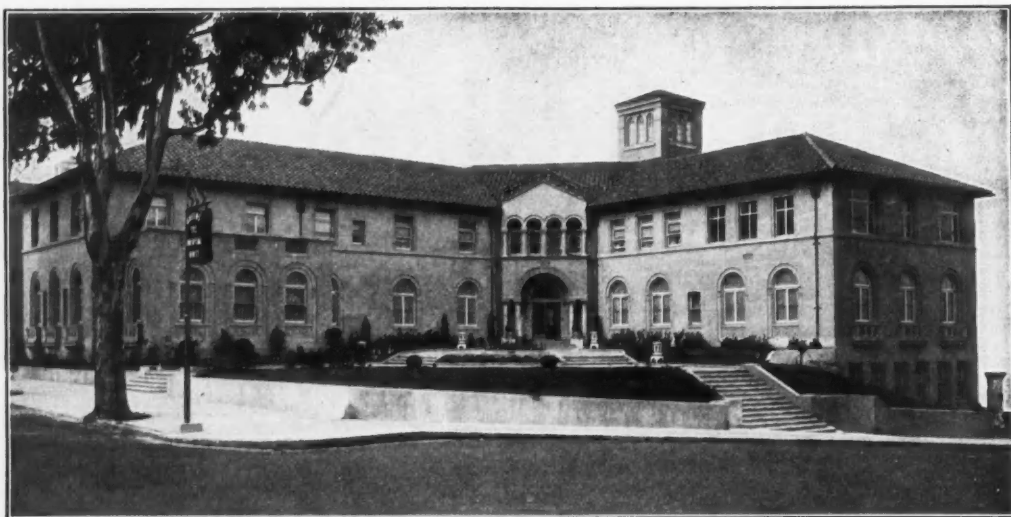
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CALIFORNIA AND WESTERN MEDICINE

VOLUME XXXIV

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MINIMUM REQUIREMENTS FOR ROENTGENOGRAPHY*

By H. J. ULLMANN, M. D.
Santa Barbara

DISCUSSION by John M. Rehfsch, M. D., San Francisco; R. R. Newell, M. D., San Francisco; A. U. Desjardins, M. D., Rochester, Minnesota.

THE physician who has just installed a roentgen equipment or the roentgen diagnostician who is suddenly faced with the problem of roentgenotherapy for the first time is usually appalled at the mass of data given in textbooks on therapy and with which he assumes he must be familiar in order to apply a proper dose of the roentgen ray.

On the other hand, he may believe that all necessary requirements are met if he makes a rough test to ascertain if the "tension" is equal to a "six-inch gap" and then, using the arithmetical formula, confidently gives an epilating dose for tinia tonsurans. On the law of chance and probability one of three things may happen. The hair may fall out, regrow luxuriantly, and the child be cured of its tinia. The hair may not fall out and the child retain the tinia. Or the hair may fall out with resultant cure but without regrowth, the head remaining as bald as the proverbial egg. With the dose estimated and controlled as above, the chances of each of these results occurring are about equal.

There is nothing presented in this paper that is not already known to the experienced radiologist, but it is hoped that the information given will be of use to the inexperienced and a deterrent to those who believe that an exposure of so many minutes constitutes a dose. Nothing will be said of the different methods of estimating dosage. These can be found by those interested in various texts. The recommendations must, in a short paper, be given didactically and are believed by the author to be the minimum requirements. As one becomes experienced one will necessarily use variants according to the nature of the case under treatment and will want to use accurate measuring devices and become familiar with their application. These are not necessary for routine clinical work if one is willing to follow the recommended doses of those working with such instruments. I believe the following recommendations and data are the minimum, and

one unfamiliar with them gives roentgen treatments at the peril of his patients and himself.

BASIC FACTORS

The Quality of the Radiation.—The quality of the radiation is a function of (depends on) the voltage and the voltage must be measured as such, not in inches gap. This was first demonstrated by me in 1921¹ and again by Markley in 1926.² It is most conveniently measured by a sphere gap in routine practice. The quality is also determined by the presence or absence of a filter, its thickness, and the material of which it is made.

The Quantity of the Radiation.—The quantity of radiation is a function of (depends on) the voltage. Because the quantity varied with the square of the voltage when direct current was used in experimental work the error that such a law held true with rectified (rotating switch) current, has been printed in textbooks and more or less assumed in calculating dosage. This is not true. I have reported a series of tests³ showing that, with the one apparatus tested, an error as high as 17.5 per cent in the calculated dose may occur. This error may vary higher or lower with different machines. It is recommended, therefore, that a single voltage be adopted for certain purposes and all tests and doses be based upon it.

Quantity is a function of the milliamperage. Two milliammeters in series should always be used in treatment work. Meters not infrequently develop errors and when two are used a difference in reading between the two immediately calls attention to the fact that one of the meters is in error and must be repaired.

Quantity varies inversely with the square of the distance from the focal spot on the target of the tube to the irradiated surface. If the spot is twice as far away the dose will only be one-fourth if all the other factors are the same.

Quantity varies with the port or size of the irradiated area, due to backscattering of rays from the tissue beneath. The following table was made with a standardized instrument at 90 K. V. P. without filter to determine this variation. As it was found that with an area of 2.5 centimeters (one inch) square or less, backscattering could be ignored, the dose for this area was taken as 100. As the dose increases with the size of the port, the number of each port indicates to what per cent the dose or time for 2.5 centimeters² must be reduced to produce equivalent skin effects for each larger port.

*From the department of radiology and cancer research, Santa Barbara Cottage Hospital, Santa Barbara.

¹Read before the Radiology Section of the California Medical Association at the fifty-ninth annual session at Del Monte, April 28 to May 1, 1930.

TABLE 1.—At Ninety K. V. P.

Port in square centimeter	Time for equivalent dose
4.5	100
16.0	91
28.0	89
64.0	86
202.0	83

In these measurements 90 K. V. P. was used for the reason that I have used it as a standard in superficial therapy for the last nine years. This voltage when tested against blunt points at sea level will give a sparkover from $5\frac{3}{4}$ to $6\frac{1}{2}$ inches, depending upon atmospheric conditions, and when substituted for the six-inch gap in the arithmetical formula advised by MacKee in the first edition of his book "X-Rays and Radium in the Treatment of Diseases of the Skin," worked out as exactly as could be determined by Sabouraud and Noire pastiles and the epilation of scalp hair.

Quantity is a function of the time. This is obvious. If the exposure is twice as long, twice the dose will be given if all the other factors are the same. Quantity is often spoken of as milliamperere minutes (the number of milliamperes or rate of radiation output times the minutes during which the dose is applied). Five milliamperes for three minutes (fifteen milliamperere minutes) equals three milliamperes for five minutes (fifteen milliamperere minutes). It must not be assumed, however, that this holds true for large variations. The effect of one milliamperere for 100 minutes is not the same as 100 milliamperes for one minute. When the ratio is greater than six to one the effect is greater for the higher milliamperage. In all routine practice, however, milliamperere minutes may be used to express the quantity so far as output and time is concerned.

Determination of Skin Unit for Unfiltered Radiation.—The physician, knowing the above, and with his machine installed, must now determine his skin unit for unfiltered or superficial therapy. It is recommended that the machine be calibrated by the physician for 90 K. V. P., with a sphere gap (the best method, as it is necessary to recheck at intervals) or by the agency installing it. He should then decide at what milliamperage he will operate. The author uses 5 for all his work (except at 200 K. V. P., where the output is 30), as it is convenient to calculate from and cuts the operating time to a minimum. The tube must then be calibrated against human skin. The following method is from MacKee. The factors and time is that recommended by the writer. Assume definite constants, kilovoltage, distance, and milliamperage. Shield an area 2.5 centimeters (one inch) square on the flexor surface of the forearm or the inner aspect of the thigh with lead foil or lead rubber. A young adult or an adolescent with fairly white skin is preferable. For medico-legal reasons the operator should use his own forearm. If the K. V. P. is 90, the milliamperage 5, and the focal skin distance 30 centimeters, expose for three minutes and wait two

weeks for a possible erythema. If none appears increase the exposure 20 per cent. If a definite erythema occurs it is wise to repeat with 20 per cent less. When the dose is determined that will produce a faint but definite erythema, it may be taken as the arbitrary or skin unit. Three-fourths to one of these units is the amount required to produce epilation on the average scalp in tinea tonsurans. One-fourth of this dose given once a week is a common treatment for acne. Five to ten times this dose at one time or fractionated over three to six days is the dose for surface epitheliomata. Obviously it is preferable, for the sake of safety, to standardize on fairly sensitive normal skin. Children are too sensitive for this purpose and this sensitiveness must be borne in mind when treating a child, and the usual dose reduced. Unfortunately the exact amount of reduction is unknown, but it should not be less than 25 per cent in young children. For areas larger than one inch square the dose must be reduced according to Table 1. For instance, if the unit on one square inch was obtained at three minutes and fifteen seconds one-fourth unit given over the entire side of the face would be only 83 per cent of this one-fourth, or approximately forty seconds. As the glass of x-ray tubes vary in thickness the standardization on skin must be repeated whenever the tube is changed.

Determination of Skin Unit for Filtered Radiation.—The determination of the unit skin dose with filtered radiation is not as simple. The skin will tolerate an overdose of filtered radiation that would result in irreparable damage if unfiltered. At the same time injuries from filtered radiation extend deeper beneath the skin and are slower in appearing. In order to obtain a working basis a series of measurements were made at different voltages, filters, and ports.

TABLE 2.—F. S. D. Thirty Centimeters

K. V. P.	millimeters of aluminium	In square centimeters	r per minute at 5 milliamperes
100	1	202	68
100	1	64	57
120	1	202	92
120	1	64	84
120	3	202	50
120	3	64	46
120	4	202	40
120	4	64	37
125	3	202	54
125	3	64	48
125	4	202	45
125	4	64	40

If 400 r (with backscattering) is taken as the minimum erythema dose for low voltage and light filtration, it is seen from the table that with 125 K. V. P., 5 milliamperes, 30 centimeters F. S. D., 4 millimeters of aluminium as filter, and a 64 square centimeter port, such a dose would be given in ten minutes. This would produce a light erythema in some individuals but not in others, and in most cases can be increased 25 per cent (500 r) or more with safety. A dose of more than 500 r of such wavelengths should not be given by an inexperienced physician, although usually safe for the experienced radiologist. It

is always dangerous to give more than 400 r to an area larger than 150 square centimeters and rarely necessary. For practical purposes, with a new installation of the mechanical rectifier type, this table may be assumed to be reasonably correct until the operator can test the skin reactions against the dose. When this is done for any setting, the value obtained may be substituted for that in the table at the voltage and filter used for the clinical observation and a table calculated for the equipment, using the new value as the base and the table for the per cent variation at the other ports, voltages, and filters. It is believed that this method is accurate enough within its range for clinical purposes. The proper dose for other distances is easily obtained from the table and the inverse square law.

For high voltage, heavily filtered radiation, the factors involved are the same except that a larger dose in r's is required to produce a skin reaction and the depth dose becomes of prime importance. With this, as with superficial therapy, it is not necessary to test the quantity of radiation with the ionization chamber. It is absolutely necessary, however, to have a sphere gap as part of the installation. Fortunately Packard⁴ has found that the dose of roentgen rays necessary to kill the eggs of the fruitfly (*Drosophila*) is that required to produce a light erythema on a large proportion of individuals, and full directions for standardizing dosage by this method have been given by Wood.⁵ The number of r's represented by this dose is about 800, including backscattering, and about 500 measured in air. I have, for convenience, called such an amount a 100 per cent dose and found that with my machine it will be obtained at 200 K. V. P., 50 centimeters F. S. D., 0.5 millimeters of Cu and 1 millimeter aluminium filter and a 24 by 24 centimeter port with 300 milliamperes minutes. A reaction severe enough to produce blistering is not usual under 130 to 140 per cent of this amount. In dividing the dose, I found it safe to assume that there is a loss in effect of 7 per cent per day, but it must be understood that the accumulation is not allowed to go above this 100 per cent.

As with superficial therapy, the dose recommended as a standard may be exceeded safely in many instances by an experienced radiologist, and is given solely as a safe starting point for the beginner.

Determination of Depth Dosage.—The technique of cross-firing and determining the depth dose can be obtained from standard textbooks and cannot be discussed here, and the necessity of taking the order in which ports are used in cross-firing into consideration when formulating a course of treatments has been shown in a recent article.⁶

Charting Courses of Treatment for Deep Therapy.—The laying out of a course of treatment and calculation of dosage for so-called deep therapy is much more complicated than for the superficial. A physician, before entering the practice

of short-wave therapy, must study the latest texts and become familiar with all the factors involved. He should also visit radiological clinics just as he would attend surgical clinics if he were taking up surgery for the first time, for he who operates the modern high power installations is assuming as much responsibility as though he were performing major operations. The high road to radiology is a part of the medical highway, and while there are many rough detours and hard climbs there are no short cuts.

1520 Chapala.

REFERENCES

1. Ullmann, H. J. The Practical Application of the Sphere Gap to Roentgenotherapy. *Am. Jour. Roentgenol.*, viii, 195, April 1921.
2. Markley, A. J. *Arch. Dermat. and Syph.*, xiv, 704, December 1926.
3. Ullmann, H. J. Fundamentals of Roentgen-Ray Treatment. *Radiology*, xiv, 28, January 1930.
4. Packard, Charles. Measurement of Quantitative Biological Effects of X-rays. *Jour. Cancer Res.*, x, 319, October 1926.
5. Wood, Francis Carter. A Biological Ionization Chamber. *Radiology*, xii, 461, June 1929.
6. Ullmann, H. J. Relation of Fractional to Depth Dose. *Am. Jour. Roentgenol. and Rad. Ther.*, xxi, 174, February 1929.

DISCUSSION

JOHN M. REHFISCH, M. D. (450 Sutter Street, San Francisco).—Doctor Ullmann's article is very interesting. It is a comfort to find a roentgen-therapist bold enough to relegate the impressive measuring devices to the group of nonessential instruments. After ten years of working with dosimeters, ionometers and iontoquantimeters of many kinds, I am ready to fall in behind Doctor Ullmann. Indeed, I am not sure that I might not go further than he does and express a doubt as to whether the *general* use of these instruments is not more often a danger than a safeguard. They are so delicate and suffer from such mysterious and vexatious ailments at crucial moments that they are likely to be quite a menace in the hands of any man who has the common human failing of making a god out of a machine. So many people seem to throw all common sense and reason to the winds in the face of a reading from a so-called "instrument of precision." And yet one is forced to admit that it would be a sore deprivation in one's own laboratory to be without some kind of a measuring instrument—even if one is suspicious of every measurement it makes.

Doctor Ullmann's observation that roentgen ray output varies with different tubes, if no filter is used, is of course quite true. It is also, however, worth mentioning that roentgen ray output is for practical purposes independent of tubes when heavy filters are used, provided the focal spot is within normal limits of size. I am speaking, of course, of new tubes with unpitted targets.

Another of Doctor Ullmann's remarks which seems—to me at least—to be worth heavy underlining is that the skin will stand an overdose of filtered radiation, when a comparable dose would do irreparable damage with no filter in place. The enormous factor of safety that a filter gives us is perhaps not so widely known as it should be. I am beginning to doubt whether we should *ever* use the unfiltered ray except when we deliberately go out after caustic effects in small areas.

I should also like to stress the fact that roentgen therapy is a biophysical job, that anyone of average intelligence can learn the essential physics of it in a very short time, but that when all that knowledge is added to him he will feel more and more impressed and depressed with the magnitude of the biological factors with which he has to deal. The more patients that he treats the more embarrassed he will be by our

almost unqualified ignorance of most of the fundamental laws of biological response to radiation. It is to men like Ewing (if there are any like him) that we look for some kind of a comprehensive synthesis of radiobiological data.

*

R. R. NEWELL, M. D. (Stanford University Hospital, San Francisco).—To teach physicians the safe route in roentgenotherapy in one lesson is probably an ambition impossible of attainment. Doctor Ullmann has, however, pointed to the major dangers and ways to avoid them.

Time and distance I can measure surely, but I distrust all the other instruments, even the sphere gap. However, if they all hang together, if everything is running today just as it did yesterday, then confidence is a good deal restored. One instrument can hardly go wrong without getting out of line with the others. But *anything abnormal* in the operation of the machine must be solved before continuing treatment.

I try also to keep a healthy distrust of myself. Errors of memory and mistakes in mental arithmetic are productive of more "incidents" in roentgenotherapy than are lying instruments.

I would urge that the physician use always the same setting and vary his dosage by changing only time and distance. Two, or at most three, qualities are quite sufficient. Personally I would be content with only two filters, say one millimeter aluminum and one-half millimeter copper plus one millimeter aluminum. One who treats one disease with one millimeter aluminum and other with two millimeters aluminum is, in my opinion, merely making it difficult for himself to learn by clinical experience.

I would not urge on anyone such a repair risk as an iontoquantimeter or the like. Nevertheless, I do use an ionization instrument myself, for the advantage of one more check, and also because doses recorded in ionization units do presumably mean the same thing in Paris or Vienna as in San Francisco.

Doctor Ullmann has written the difference between large areas treated and small ones—physically measured. I would urge that the clinical difference is even greater. The application of 800 r might raise blisters on a large area, yet three times that dose can be given safely to an area five millimeters in diameter.

There is one variable that we have not learned to measure—the patient. Idiosyncrasy does exist, but the doses indicated by Doctor Ullmann will not cause patients to sicken and die, nor to break down and ulcerate. Idiosyncrasy has led me to disaster only where heavy dosage has been repeated several times. These were late ulcerations.

Doctor Ullmann's figure, seven per cent per day recovery, may be right for skin epithelium. It is the figure I use in my own calculations. But much more lasting changes occur in subcutaneous tissue after heavy roentgen radiation. The art suffers sadly from lack of knowledge of the fundamental biologic action of roentgen ray, and the differences in response of different tissues.

*

A. U. DESJARDINS, M. D. (The Mayo Clinic, Rochester, Minnesota).—The requirements specified by Doctor Ullmann are entirely sound and one can hardly take exception to them. For the benefit of general practitioners who may read these requirements I should like to emphasize a few points. I should like to take exception first to the tendency of physicians as well as radiologists to use certain words which are misleading and which have little or no meaning. I refer for instance to the expression "deep" or "intensive" roentgen-ray treatment. These expressions have very little meaning unless they are accompanied by the electrical and other technical specifications which would make them intelligible. Consequently it would be more rational for the physician or surgeon referring a patient to the radiologist simply to say "roentgen treatment" and leave it to the radiologist to determine what is best under the circumstances; because, if the radiologist is worthy

of his hire, he is in conscience bound as a physician to do this. It is inconceivable that physicians who know little or nothing about radiotherapy should venture to dictate the details of such treatment.

Another point relates to roentgen ray apparatus and roentgen ray output. The importance of keeping roentgen ray apparatus and all the electrical connections thoroughly clean is not realized as it should be. To make this importance clear I need only relate the experience of the United States Navy as told by Surgeon-General Stitt himself. For some time the surgeon-general had been receiving from medical officers stationed in different parts of the tropics reports that, owing to the high humidity and temperature, the roentgen ray output was much lower than would be expected under better conditions. The number of such complaints led Surgeon-General Stitt to refer this problem to the physical laboratory maintained by the navy at Brooklyn. The first step in investigating the problem was to build a chamber in which both the humidity and temperature could be absolutely controlled. Then a series of tests with different makes of roentgen ray apparatus were made at different temperatures and with different degrees of humidity; it was found that if the apparatus were kept absolutely clean the maximum variation in output was about five per cent and that any variation above this was due to dirt.

At almost every meeting of radiologists and in almost every journal devoted to this subject, we find communications on or hear discussions of the subject of dosage. In most cases the communications or discussions revolve around the measurement of the quantity of roentgen rays by various ionization methods. I should like to emphasize that the measurement of the quantity of roentgen rays does not constitute the measurement of dosage in any respect. A dose of roentgen rays involves several factors: (1) the quantity of roentgen rays; (2) the quality of roentgen rays; and (3) an unknown x constituted by the patient. Therefore, to speak of a dose of x-rays as 1400 r does not mean very much unless it is accompanied by a specification of the quality of the rays by the precise method by which the treatment was applied to the patient, and also the condition of the patient, and I am coming to think more and more that the knowledge of the patient and his condition is the most important of all the factors.

*

DOCTOR ULLMANN (Closing).—I am glad that Doctor Rehfish has given me an opportunity to enlarge on the possibility of error when using measuring instruments. The more accurate the instrument the greater the care required to obtain reasonably accurate results. As an example, I offer the following procedure which I followed in making the tables given in this and other papers. To determine the average output of my tube, which is the essential thing, not the output at any particular moment, I would operate under my standard conditions and take from five to ten consecutive readings. All these readings must be within five per cent of their average or the setup rechecked for error. The average of these readings was recorded as the output at that particular time. This was repeated the same day or a few days later again recorded, and both records averaged for the average output of the machine. This procedure was repeated at intervals of weeks to months until I was fairly sure that my equipment was delivering radiation constant enough for all practical purposes. This must be done every few months, as I have found the output to change appreciably, requiring careful inspection of equipment and readjustment of rectifier gaps, switch, connections, etc. The tables, therefore, are the results of many observations extending over more than two years. A single set of observations may be very misleading.

Doctor Rehfish spoke of the independence of the output of different tubes when filters were used. It should be noted that the variation in output was only spoken of in connection with unfiltered radiation.

It is true that there is a greater factor of safety with filtered than with unfiltered radiation, but it must be remembered that when damage is done it will extend deeper beneath the skin with filtered than with unfiltered rays because of their increased penetration.

I cannot agree with Doctor Newell on the statement that the difference between the large and small areas is much greater clinically than when physically measured, so far as these tables and the size of the doses under consideration are concerned. One would rarely use an area greater than 24 by 24 centimeters (576 square centimeters) and 800 r when measured to include backscattering will produce a light erythema on such an area in less than 50 per cent of individuals and a tan in about 75 per cent. It is equivalent to the minimum erythema or unit dose of radium given in the published tables of the Standardization and Research Committee of the American Radium Society. I cannot conceive of such a dose resulting in blisters except under exceptionally abnormal conditions. It must be borne in mind, however, that I refer to 800 r measured on the skin so as to include backscattering, not simply the tube output measured in air. It has long been known that many times the erythema dose may be applied to very small area without permanent damage, but such dosage must be reserved for the experienced radiologist and is beyond the scope of this paper.

I have used seven per cent as the daily recovery because it is below the eight per cent recovery for skin determined by Stenstrom and well within safe limits, as shown by the clinical results of several experienced radiologists. This factor and the reasons for its use were discussed by me in "The Relation of Fractional to Depth Dose."

It is fortunate that Doctor Desjardins stressed the importance of the clinical side of radiation therapy. It is too true that the profession as a whole considers roentgen therapy purely a technical problem and not infrequently turn their patients over to a lay technician for treatment. Roentgen therapy is primarily a clinical problem, and this paper was intended to assist the clinician and the clinician only in his difficulties with the physical aspects of formulating a dose of the roentgen rays.

In closing I wish to repeat what I said at the beginning of the paper. The recommendations and data are only the minimum requirements and are reasonably safe. To be even moderately qualified as a radiation-therapist the physician must consider them as only a few bricks with which to begin building the foundation of his knowledge.

DIFFICULT FRACTURES*

REPORT OF CASES

By W. C. ADAMS, M. D.
Oakland

DISCUSSION by Charles A. Dukes, M. D., Oakland; Ernest W. Cleary, M. D., San Francisco; N. Austin Cary, M. D., Oakland.

THIS paper is written, not with the thought of offering or suggesting anything new in the treatment of the commoner types of fractures. The common fractures are selected because in them lie the greatest number of problems and unsatisfactory results. In my opinion, there is no department of medicine and surgery more important than that of the treatment of fractures; the future happiness of vast numbers of injured depends on their proper treatment. Certainly

major abdominal surgery, both in technique and after-care, does not overshadow the reduction of dislocations and the care of injuries to such bones as the femur and humerus. While the mortality is not so great, especially in those individuals past the age of fifty years, the expense to the injured, the loss of time from work and home, the pain endured, is greater in fractures than in the average abdominal operation. One writer (Speed) has mentioned the great ado (not unnecessarily) made over a case of acute appendicitis for which every facility of a modern hospital is thrown into action (many nurses, laboratory staff, the surgical department and special nurses for the patient) and for which the average hospital stay is but ten to twelve days. Is the equivalent amount of attention required for fracture patients who are so prone to a multitude of complications? In such important injuries as fractures the hospital selected should have ample equipment, such as proper fracture tables, portable x-rays, orthopedic room, beds with framework fitted, a selection of splints, and the technique of the operating room and staff should be above question if open operation be necessary. The surgeon in charge should make sufficiently frequent personal inspection of his patient after reduction has been started. Too often the adjustment of the apparatus is left to a student nurse or to an orderly who knows little of the pathology of the fracture or the physiology of the limb. Extension apparatus easily gets out of adjustment and the bone fragments out of alignment, so that frequent inspection by the expert is essential to the happiness and comfort of the patient and, most important, to the best functioning of the injured limb.

No set rules of treatment can be followed in any type of fracture, the proper procedure having to be worked out separately in each instance. My experience has been that the open method is the procedure of choice in fractures of the long bones when satisfactory reduction has not taken place after six to ten days of faithful application of some form of extension. In a well-appointed hospital, with a skilled surgeon, the operative method of reducing fractures is today performed with vastly increased safety. In this manner, as a rule perfect apposition of fragments is obtained and the limb restored to absolutely normal function when otherwise much unhappiness would have occurred from deformity and loss of function.

Time will not permit of any detailed discussion of types of apparatus for conservative treatment or the various methods of fixation in open operation.

The cases reported in this paper are those which were complicated with other fractures or which presented some difficult problem.

REPORT OF CASES

CASE 1.—Lester P., age eight, fell from a tree. The distal ends of the left radius and ulna were forced through the volar surface of the wrist and projected into the dirt and grass. He was cared for at a county hospital for the following five days. X-rays taken there showed that the distal end of the radius had separated from the epiphysis, leaving this distal fragment in its normal articulation with the wrist.

* Read before the Industrial Medicine and Surgery Section of the California Medical Association at the fifty-ninth annual session at Del Monte, April 28 to May 1, 1930.

When I first saw the boy he was delirious, had a temperature of 102 degrees, and the arm from the mid-brachial region to and including the hand was greatly swollen and reddened—almost gangrenous. The distal ends of the radius and ulna were blackened and still protruding about two inches outside of the skin. The fascia and ligaments of the wrist joint were necrotic and exceedingly foul-smelling. I removed him immediately to an Oakland hospital and operated at once, removing all the necrotic tissue possible. Incision in the immensely swollen hand elicited no blood whatsoever. Incisions were also made into the forearm for proper drainage. With much difficulty a dorsal board splint was applied with one end projecting beyond the finger tips. With adhesive tape fixed to the fingers a strong rubber-band extension was begun. Day and night special nurses were employed to keep the arm in a continuous warm compress of 1 to 5000 bichlorid solution in a saturated magnesium sulphate solution, and twice daily the arm was placed in a full-arm bath of the same solution. After a few days we were delighted to see bright blood appearing in the hand incisions, and with it the boy's general condition improved greatly and the swelling decreased. After twelve days he left the hospital and came to the office for daily dressings. About two weeks later a full one and one-half inches of the distal ends of the radius and ulna dropped off. The extension splint was watched now more carefully to prevent shortening until the tissues would clean up sufficiently for a possible bone graft. About ten weeks from date of accident, when the tissues were pretty well healed, there was noted a very marked rigidity in the entire arm. Imagine my surprise when x-ray showed that new bone had grown from the proximal fragment of the radius and attached itself to the epiphysis which had been left behind. The distal end of the remaining ulna had formed bony union with the radius. All went well until the end of the fourth month, when he fell while playing and fractured the new bone at its middle. With further immobilization the new bone repaired itself quite rapidly. The boy was discharged at the end of the sixth month with no shortening of the arm and a good-appearing hand, although there was marked limitation of motion in all of the fingers.

CASE 2.—W. W., a carpenter's helper, age twenty-five. Fell from a second-story floor of a building under construction, rendering him unconscious. When I first saw him at a hospital the following day, he was still irrational and attempting to get out of bed. X-ray showed fracture of both femora through their middle thirds—that of the left being compound—with fully four inches of proximal displacement of both lower fragments. There was also fracture of the right patella and three fractures of the mandible with marked displacement of fragments. This last condition complicated matters greatly, for it was necessary to wire the upper and lower teeth firmly together, making it impossible to give a general anesthetic.

Thomas extension with adhesive traction was applied to both legs for a period of three weeks. Reduction not taking place, skeletal traction of ice tongs was attempted with no better results. His general condition was so serious at this time, it was necessary that something radical be done at once. The wires on his teeth were removed and, under general anesthesia, both femurs were plated with Lane plates. By this time much bony callus had formed which it was necessary to clear away. Sixteen days after the operation, sloughing of the callus in the left leg took place and after ample drainage quickly cleared up. X-rays showed no infection of the bone. Bony union took place promptly. When seen one year after injury there was but 22 degrees limitation of motion in the right knee and 12 degrees in the left. He was climbing about buildings at his usual occupation.

CASE 3.—Douglas N., special delivery boy for a newspaper, age sixteen. While riding his bicycle he

was struck by an automobile, causing an incomplete fracture of the left radius three inches from the wrist-joint, and a complete fracture of the radius and ulna of the same arm three inches below the elbow, with marked dorsal displacement of both. There was a comminuted fracture of the left femur in the upper third with the distal fragment displaced two inches proximally, medially, and dorsally. The radius and ulna were fixed with Lane plates, and after eleven days of a Thomas extension on the femur without results, a Dukes bone plate was used. This plate I found to be excellent, as it made a second operation to remove a Lane plate through the deep muscle tissues unnecessary. Bony union took place without incident and the Dukes plate was removed at the end of the seventh week. The plaster spica was removed at the end of the eighth week and the injured allowed to begin some weight bearing, aided with crutches. He was discharged to his usual duties in five and one-half months.

CASE 4.—John H., machinist, age fifty-one. His jumper sleeve became caught in a large revolving shaft, winding his left arm about it. The entire arm was like a flail. The patient was in severe shock from being whirled about the shaft. He sustained a spiral fracture of the left humerus at the junction of the lower and middle thirds with marked displacement of the fragments; also extensive fractures of the left radius and ulna with wide separation of the fragments—that of the ulna was compound. Thomas extension was used on all of the fractures. The humerus not responding in fifteen days, a Lane plate was applied, the ulna was wired and the arm was returned to the Thomas extension to keep the numerous fragments of the radius in alignment. The extension was removed after nineteen days and a plaster dressing applied. Physiotherapy was started four weeks after operation. The contour of the arm was such that it was not evident that a fracture had taken place. Some limitation of flexion of the fingers remained, although the patient returned to his usual duties.

CASE 5.—Mrs. T., age fifty. Married. Housewife. Stepped from an automobile to a very deep gutter at night and, misjudging the depth of the gutter, severely wrenched her left leg. She was not seen by the writer until two days later. The lower one-third of the leg was markedly swollen and flail-like. X-ray showed a spiral fracture of the lower one-third of the left tibia with lateral and proximal displacement of the distal fragment; a fracture through the posterior one-third of the distal articular surface of the tibia which allowed marked anterior displacement of the anterior fragment on the astragalus. The distal end of the left fibula was fractured. Under gas anesthesia the writer was able, with very strong traction on the foot, to manipulate all of the fragments into a satisfactory reduction. The entire leg to the hip was placed in a plaster dressing for ten weeks. Weight bearing was permitted in twelve weeks. Patient recovered without any apparent limp. This was one of those cases in which one was able, in a comfortable manner, to get out of a difficult situation, extension splints or open methods not being necessary.

CASE 6.—Captain F. W., captain of a sailing vessel, age fifty. An extremely large man, weighing two hundred and fifty pounds, fell through a hatchway a distance of fifteen feet. When seen at the hospital he was in considerable shock and expectorating blood from the lungs. This case was interesting because of the multiplicity of fractures and complications. There was a fracture of the surgical neck of the right humerus with some separation of the fragments, fractures of the distal ends of both radii with typical Colles' displacement, and fracture of right third and fourth ribs with evidences of a punctured lung, namely, expectoration of blood, and air in the subcutaneous tissues. The right shoulder and wrist were

placed in Thomas extension in extreme abduction until shock had subsided and danger of pneumonia had passed. He did develop an infection in the right lung, temperature ranging about 104 degrees. When this infection had subsided, the wrist fractures were reduced under gas anesthesia and put up in a plaster dressing and the shoulder was put up in a modified aeroplane plaster dressing in semi-abduction, x-rays showing that complete reduction of the humeral fracture was effected by this amount of abduction. The shoulder immobilization was removed in four weeks from the date of application, and physiotherapy was instituted. Complete recovery from the shoulder injury has occurred.

I like semi-abduction for these fractures of the neck of the humerus whenever possible because it is sufficient to allow prompt return of complete motion in the joint, and it is a very comfortable position. The shoulder held in extreme abduction is so often very painful from impingement of the greater tuberosity on the acromion process.

CASE 7.—Robert B., stevedore, age forty-eight. While at work on the deck of a ship, stepped into a loop of steel cable attached to a crane. The loop suddenly tightened, almost amputating the left leg at its lower third. Both the tibia and fibula and the extensor muscles and soft tissues were crushingly severed, fortunately leaving the posterior one-third of the leg intact, including the flexor tendons, vessels, and nerves. Of course, the wound was very dirty and contaminated. The injury was so severe and extensive that amputation was seriously considered. There was seen, however, to be considerable circulation remaining in the foot, so an effort was made to restore the leg. A Dukes bone plate was applied to the tibia and the soft tissues approximated as well as possible and the leg put up in plaster. As was expected, infection developed in the bones. The screws loosened because of suppuration, necessitating complete removal of the bone plate. One to five thousand bichlorid in saturated magnesium sulphate solution was used as irrigation and wet compresses. The plaster dressing was reinforced with a right-angled posterior steel splint and all the plaster cut away from the site of injury, making dressing more convenient. Extension by skeletal traction was not employed because of the close proximity to this profusely discharging wound. At ten weeks new bone was shown by x-rays. Seven months from date of injury the patient was walking about and placing full weight upon the leg. Small fragments of bone have discharged at various intervals. At the tenth month a small area of osteomyelitis deep in the shaft of the tibia developed which cleared up quickly after curetting. Recent x-rays show dense bony union.

SUMMARY

In conclusion, I feel that in these long bone fractures with displacement of fragments we frequently wait too long before open operation is done. We should use our best judgment and decide early the need for operation, for the earlier the decision the sooner and better the outcome.

Open operation offers the advantage of perfect reduction and alignment of fragments, better assurance of bony union, better and quicker joint and muscle function because of the markedly lessened time of immobilization, and a much lessened expense to both the insurance carrier and the injured.

1904 Franklin Street.

DISCUSSION

CHARLES A. DUKES, M. D. (426 Seventeenth Street, Oakland).—The paper by Dr. W. C. Adams incorporates not only the science of treatment of fractures, but also the art.

Certainly no first-class carpenter would go to a job without his own tools, but how frequently we see going to the surgery men who have scheduled a certain class of bone work in a hospital where they are not acquainted with the operating staff, nor with the instruments which are available. The screws may not be the right length, the plates not adaptable and the drills that are ready not the proper size, and dies cannot be found. Too careful attention cannot be given to the instruments before doing fracture surgery.

I feel grateful to Doctor Adams for mentioning the Dukes external bone plate, as I have been quite successful in using it in the type of fracture with which he has dealt in his paper. The use of these plates, as in the use of any other method of fixation of fractured bones, must be adapted or suggested by the case in hand, as no one type of apparatus can be used in every type of fracture.

The doctor has also stressed the matter of nursing, which is so important in these severe traumatisms in which the injury to the soft part is great.

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ERNEST W. CLEARY, M. D. (490 Post Street, San Francisco).—Doctor Adams has presented a strong brief for early operative treatment of selected severe cases. I congratulate him heartily on the fine results shown by his x-rays and case records.

Surely, as he says, every hospital which attempts to give service for major fractures should have all the special equipment mentioned. The necessity for high standards of operating-room technique and nursing service, are, I think, paramount. Some of us have learned by bitter experience that fine equipment does not always mean safe technique in a hospital. Hospitals where mediocre standards prevail may get by with soft-tissue surgery and yet be dangerously inadequate for major bone and joint surgery.

Certainly time can be saved and often better function restored by early operation on a fracture. Recognizing this, even the most conservative of bone and joint surgeons take advantage of the increased safety afforded by better and more widely available hospital facilities. We are operating on fractures more often now than ever before, but the best surgical and hospital technique ever yet produced cannot make a contaminated field safe for a bone operation, and the results obtainable by the best conservative methods so nearly approximate the best results that may be obtained by operation that reckless operative surgery is inexcusable.

Overenthusiasm for operative treatment of fractures has its grave consequences. To be a safe bone and joint operator a surgeon must be wise and guarded in his selection of cases—meticulously careful in his own technique and exacting in his requirements for operating-room technique and pre- and postoperative care. Surgeons who are less discriminating will too often bring sorrow and disaster to their patients and themselves and discredit to the procedures which they undertake.

Always should the bone and joint surgeon beware of introducing into his fracture problem dangerous, perhaps uncontrollable, factors. I am convinced that the application of any sort of foreign body fixation to bone through a frankly contaminated or a doubtful operative field may, in many instances, introduce a factor of uncontrollable infection. Surgeons who are led to take such chances doubtless will have many brilliant results, but they will also have on their consciences some avoidable deaths and too many devastating infections.

Every type of fracture, which is ever amenable to open operative treatment, is also met with rather frequently, accompanied by complications, or in an environment such that operation is unwise or impracticable. No surgeon who is not a master of the best conservative methods of handling difficult fractures should ever operate upon such cases. The masters of conservative methods know that good functional results may be obtained by conservative treatment in

practically every case of fracture which will yield good results from operation. Such surgeons will not set the stage for a disastrous, perhaps fatal, infection by operating upon bone through an unsafe or contaminated field. Always when they must deal with contaminated fields of operation they will confine their procedures to such cleansing and redressment as is best compatible with the patient's safety. Practically never will they introduce foreign body fixation into a contaminated field. They will play safe rather than take a gambler's chance on saving time or obtaining a particularly quick and brilliant result.

I have gotten good results in cases similar to Doctor Adams' Case No. 7 (an extensively comminuted, compounded and contaminated fracture of both bones just above the ankle joint) by conservative methods, using a Thomas splint, celluloid-acetone adhesive foot piece for traction and Carrell-Dakin irrigation of the wound. For safety sake I do not use internal foreign body fixation on such cases.

I once knew a youth who, while handling dynamite, always put the giant-powder cap into his mouth and crimped it upon the fuse with his teeth. Cap-crimping pliers were provided, but this youth said he knew a man whose hand was blown off while crimping a cap with pliers. For himself, he preferred to crimp them delicately with his teeth. If the cap exploded, well—at least he would not be a cripple. I think such reasoning should never be applied in bone surgery.

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N. AUSTIN CARY, M. D. (2939 Summit Street, Oakland).—Doctor Adams, I am sure, has a clear insight into the fracture situation. He impresses me with the belief that as the result of experience he approaches the problem of difficult fractures with but one thought in mind—the ultimate end results.

It must be remembered there is no one method applicable to all fractures. Manipulation, traction (both skin and skeletal), and open reduction all play their rôle and will, in given cases, be of use in turn. The proper choice must be the result of experience over a long period.

Our experiences in these fractures follow fairly fixed principles. Reduction is necessary for good functional results, not necessarily to correct overriding as much as alignment to assure normal function. At times this can only be obtained by open reduction; with the laws of good surgery governing, there should be little difficulty.

In open reductions I would urge a greater respect for the soft tissues, especially about the site of fracture, as I believe this occasions most of our delayed unions and nonunions. This, with inadequate fixation and the use of inadequate materials, give the greater number of poor results. At times there is too much fussing with a good functional result trying to obtain an ideal x-ray result. Functional results should always be our criteria of treatment.

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DOCTOR ADAMS (Closing).—I wish to thank Doctors Cleary, Dukes, and Cary for their frank and instructive discussions. I do not wish to convey the impression that wholesale open reductions be done on fractured bones, for it will be noted that I presented two case records where the conservative closed reduction was done. However, I do feel that too often we see great disability due to stiffened joints and muscular atrophy caused by such long periods of necessary immobilization, especially when nonunion or bad deformity has resulted after two or three months, and then more immobilization superimposed because a delayed operation has become necessary for their correction. These stiffened joints and muscle damage so frequently cause irreparable long and permanent disability and could have been avoided if early operation had been done.

Now remember, I am referring to those cases where the skin and soft tissues are in good condition. If these are contaminated and in poor condition, then

such time should elapse for their complete healing before operating. That is only sound surgical judgment. Our doctors are now so thoroughly trained and warned of the dangers and pitfalls of fractures that affirmation on the part of the orthopedists for earlier and more frequent open bone work would not result in wholesale operations by everyone in all fractures. Open bone work was looked upon with horror and dread—justly so, years ago. With the present-day teachings, improvement of technique, better trained surgeons, and our excellent hospital facilities, those dangers are little as compared with the numbers of poor results obtained by a forced operation after too long immobilization and extension when the injured's resistance has become extremely low. I say if fractures of the long bones, when uncomplicated, cannot be reduced, conservatively, in six to ten days, do the open operation. In these cases, especially of the legs, weight bearing can be started with safety and without bowing, much earlier than could possibly happen if treated by the closed method.

BLOOD PRESSURE AND GOITER*

By JOHN MARTIN ASKEY, M. D.

AND

CLARENCE G. TOLAND, M. D.
Los Angeles

DISCUSSION by Robertson Ward, M. D., San Francisco; B. O. Raulston, M. D., Los Angeles; John C. Ruddock, M. D., Los Angeles.

THYROTOXICOSIS is a commonly accepted cause for hypertension and must be ruled out in the study of any patient with high blood pressure of undetermined origin.

This is the prevailing impression despite certain experimental evidence pointing to the contrary. Intravenous injection of extracts of exophthalmic goiters by Blackford, Sandiford, and others has produced marked reduction of the blood pressure and has indicated the presence of a depressor substance in the thyroid extract. Reduction occurred only with exophthalmic goiter extracts, not with adenomas, colloid goiters or normal thyroids, and occurred only after the first injection. Apparently a tolerance toward further injections was established.

Some have reported cases tending to show low blood pressure as the typical finding in exophthalmic goiter, but the groups studied have been small.

On the other hand, Plummer in 1915 found a high percentage of hypertension in goiter patients over forty, namely, 47 per cent of the hyperplastic group and 35 per cent of the nonhyperplastic group.

TYPICAL BLOOD PRESSURE IN EXOPHTHALMIC GOITER

The blood pressure typically described in exophthalmic goiter is that of an elevated systolic pressure with a normal or lowered diastolic and a consequent elevation of the pulse pressure. The peripheral vasomotor phenomena, with the wide-open capillaries aiding in heat dissipation, tend toward a lowered diastolic pressure, and the increased systolic pressure is considered compensa-

* Read before the July meeting of the American Association for the Study of Goiter at Seattle, Washington.

tory toward maintenance of a normal diastolic pressure. The systolic has been considered as increasing more or less directly with the basal metabolism and the pulse pressure has been advanced as a measure of the basal metabolism.

USUAL PICTURE IN TOXIC ADENOMATOUS GOITER

No such typical picture occurs with the toxic adenomatous goiter. Hypertension here is usually due to a concomitant elevation of the systolic and diastolic pressure, and is somewhat similar to that seen in arteriosclerosis. The peripheral flushing, sweating, and vasomotor changes are less marked in toxic adenomas, and could explain the absence of a low diastolic pressure. These are the commonly accepted views regarding blood pressure and thyrotoxicosis.

STUDY OF FIVE HUNDRED AND FIFTY RECORDS

The failure of many of our patients with thyrotoxicosis of marked degree to show any elevation of pressure led us to study a representative group with the following thoughts:

Is the production of hypertension an invariable sequela of thyrotoxicosis?

In what percentage does it occur?

How often does low blood pressure occur?

What is the effect of thyroidectomy?

Which cases respond best to thyroidectomy?

We determined the percentage of patients with high, normal, and low blood pressure and compared them with figures as nearly normal as could be obtained. Exton's figures obtained for those applying for insurance over a period of years were used. The standards adopted for high pressure and low pressure readings were arbitrary. Regardless of age, a systolic pressure over 150, or a diastolic pressure over 110, was regarded high. Systolic pressures below 110 were considered low.

An analysis was made of the last 550 records on the service of Dr. Clarence G. Toland. Over 90 per cent were women. Thirty and six-tenths per cent of the toxic patients had hypertension and two per cent had elevation of blood pressure above that normal for their age, but not over 150. Exton found 4.3 per cent of normal women had hypertension.

TABLE 1.—Analysis of 444 Toxic Goiter Patients (Basal Metabolic Rate Average Plus 33) as to Preoperative Blood Pressure

	Number of patients	Per cent	Per cent in normal women (Exton)
Normal pressure	275	62.0	87.6
Hypertension (above 150)	136	30.6	4.3
Hypertension (high for age) (not over 150)	9	2.0	
Low pressure	24	5.4	8.1

TABLE 2.—Comparison of 100 Toxic Goiter Patients With Hypertension With 100 Toxic Goiter Patients With Normal Blood Pressure

	Type of Goiter		Average Age	History of family cardiovascular disease
	Exophthalmic	Toxic adenoma		
Hypertension	29	71	49.3	26
*Normal blood pressure	34	62	38.3	36

*Of the remaining four patients of the 100, three had malignant adenomas, and one localized arteriosclerosis.

Five and four-tenths per cent of our toxic patients had low blood pressure. Normally, Exton found 8.1 per cent. The percentage of hypertension was slightly higher in the toxic adenomas than in the exophthalmic goiters.

Thyrotoxicosis thus produced definite hypertension in about one-third of this group and did not appreciably change the percentage of patients with low blood pressure from that found in a normal group. These results thus fail to substantiate the experimental findings obtained by intravenous injection of extracts of toxic goiters, where a definite drop in blood pressure occurred.

As the basal metabolism rate average of this group was plus 33, it is evident that thyrotoxicosis does not invariably invoke elevated blood pressure, and that in this group over two-thirds failed to show any elevation of pressure.

Of the 33 per cent showing definite hypertension, the exophthalmic goiter patients showed, on an average, the pulse pressure increased more than the adenomatous patients, as was expected; but individually there was no definite correlation between the height of the basal metabolism and the height of the pulse pressure. A high pulse pressure did not always occur with a high basal metabolic rate. Comparison of one hundred records of toxic goiter with hypertension, with one hundred records of toxic goiter with normal pressure indicated a greater tendency of the toxic adenomas toward hypertension. As would be expected, the average age of the hypertension group was higher but, strangely, there was a smaller percentage of these patients with a family history of cardiovascular disease. These findings merely strengthen the impression that the greater the duration of the thyrotoxicosis the more probably hypertension will develop.

Following thyroidectomy, of one hundred toxic thyroid patients with hypertension, forty-seven had returned to normal pressure, thirty-three showed reduction of pressure but not to normal, and twenty showed no individual improvement and, on the average, actually became worse.

The exophthalmic goiter patients, a group with a lower average age and a higher average basal metabolic rate, showed a greater tendency to return to normal than the toxic adenomatous patients. Of the twenty whose pressure actually

TABLE 3.—Results in Blood Pressure After Thyroidectomy in One Hundred Toxic Goiter Patients

Blood pressure	Report of 100 patients	Age	Basal Metabolism	Pressure Before	Pressure After
Reduction to normal	47	45.9	Plus 41	165 87	136 80
Improvement but not normal	33	49.7	Plus 34	184 91	161 89
No improvement or worse	20	50	Plus 35	160 85	171 98

became worse, 75 per cent had toxic adenomas and averaged fifty years of age. Most of these showed either generalized arteriosclerosis, myocardial or renal damage.

COMMENT

The duration of the exophthalmic goiter is more transient and the toxicity, on the average, more intense. Most of these patients come to operation within the first year after the onset of symptoms. These develop the vasomotor phenomena lacking in the patient with typical toxic adenoma.

The toxic adenomatous patient, however, comes to operation after about fifteen years. The cardiovascular system has been subjected to a slow, persistent irritation which manifests itself in myocardial damage and arteriosclerosis.

It is thus logical that the blood pressure of the toxic adenomatous patient should show less tendency toward reduction by thyroidectomy than the patient with exophthalmic goiter where the elevation of systolic pressure is due to a transient toxicity rather than definite arterial damage.

CONCLUSIONS

1. Thyrotoxicosis in a group studied produced elevation of blood pressure in about 33 per cent.
2. Thyrotoxicosis did not invariably cause elevated blood pressure, the majority apparently being within normal limits.
3. About 80 per cent with hypertension showed improvement of blood pressure after thyroidectomy, 47 per cent being reduced to normal.
4. Apparently the older the patient the greater the toxicity of the goiter; the longer the duration of the thyrotoxicosis (as in the toxic adenoma) the greater the tendency toward hypertension.

1930 Wilshire Boulevard.

DISCUSSION

ROBERTSON WARD, M. D. (384 Post Street, San Francisco).—In attempting to reach a prognosis of hypertension, associated with toxic goiter, one must be particularly careful to distinguish between the two distinct types of toxic goiter, exophthalmic and adenomatous. To attempt to draw a conclusion by study of a mixed group is almost certain to lead to false conclusions. There are two reasons why this is true: first, the average age at operation for exophthalmic goiter is about thirty-three, while that for toxic adenoma is about forty-seven; and second, the

average duration of toxicity before operation is about one and one-half years in exophthalmic goiter and fifteen years in toxic adenoma.

From these findings, one would be led to suspect that the prognosis for a return to normal blood pressure, following operation, would be far better in the exophthalmic than in the adenomatous type. If we had available the data from which Doctor Askey and Doctor Toland compiled their paper, I feel sure that this would be found true. Because of the younger age and shorter duration of symptoms, we would find that hypertension—due to exophthalmic goiter—is brought to normal, or at least much lowered, by treatment in all patients, except the percentage expected in normal individuals. In toxic adenoma, it is a different story. The arteriosclerosis, resulting from ten to fifteen years of toxicity, and the rather advanced age at which these patients are treated, makes the prognosis for a return to normal blood pressure very much less likely.

This has been suggested by the authors when they state that fifteen of twenty patients, whose hypertension was not improved by operation, were of the adenomatous type.

Unless these findings are understood in this light, we will find ourselves frequently disappointed in the hypertension due to adenomatous goiter. We must be particularly guarded in our prognosis with regard to the hypertension phase in these patients. On the other hand, a patient who has hypertension, associated with exophthalmic goiter, may reasonably be expected to return to normal blood pressure when the toxic goiter is removed.

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B. O. RAULSTON, M. D. (2007 Wilshire Boulevard, Los Angeles).—There are so many factors to be considered in the study of hypertension that one welcomes any information concerning the problem, and especially the record of such carefully made observations as constitute the basis of the report made by Doctors Askey and Toland. Diagnosis, plan of management and results that may reasonably be expected in the treatment of any given condition of impaired health, depend to a large degree for their accuracy and success upon making use of knowledge that has accumulated from the type of careful study represented here.

The sharp lines that are drawn by specialization in medical practice are frequently not conducive to alertness in making general observations. It is easy to imagine a physician dealing with a patient whose blood pressure is above average without thinking seriously of the possibility of thyroid disease as being related to it, and of dealing with one suffering from disturbed thyroid function without relating it to such circulatory changes as produce hypertension. The ability to determine whether these two conditions are related, frequently requires careful analysis of all available data, and even then one cannot always feel certain of knowing how much independence of cause may be back of either of the conditions.

That the thyroid has a marked influence upon the vascular system, especially the vasomotor apparatus,

is well known. Abnormal variations in thyroid activity over long periods may easily result in organic changes in the circulatory mechanism where only functional disturbances were produced in the early stages of the disease. The observations made by the authors indicate such a relationship between duration of abnormal thyroid activity and permanency of change in the vascular system.

Having these things in mind should be a valuable aid in the study of patients presenting such problems.

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JOHN C. RUDDOCK, M. D. (1930 Wilshire Boulevard, Los Angeles).—Statistics of this character are very valuable to the advancement of medical practice. In addition, these figures help with others of like nature to dispel various axioms and dogmatic statements concerning the phenomena associated with thyroid dysfunction.

Abnormal blood pressure is a symptom which may be due to a great many factors other than thyroid disease. However, we are dealing in this paper only with those patients who have an additional factor, namely, goiter. It has been shown by other authors that the effect of the thyroid on the heart is through the sympathetic nervous system, and that the symptomatic phenomena accompanying thyroid disease (exophthalmic goiter and toxic adenoma) are identical to those found in sympathetic neurosis.

In the goiter patient we have three additional factors which are not found in patients without goiters:

1. Heart hurry (tachycardia).
2. Vasomotor instability.
3. Toxicosis (thyroid).

The authors have called attention to the vasomotor instability as being responsible for lowered diastolic pressure, and have called attention to work by Blackford, Sandiford, and others, concerning the effect of injecting toxic thyroid extracts, and producing only a transient depressor effect.

With all other factors remaining normal, heart hurry (tachycardia) alone is all-important in the height of systolic pressures. It is true that tachycardia may also be, in certain instances, a compensatory phenomenon, when there is a sudden lowering of blood pressure due to a dilated venous circulation as may occur in shock. Tachycardia, however, in thyroid disease is a result of the sympathetic accelerator action from a thyrotoxicosis. I believe that further study of blood pressures in exophthalmic goiters will show that the systolic pressures are in a direct ratio to the pulse rate. This, however, could not apply to toxic adenomas because of the other multitudinous factors, aside from thyroid disease, which enter into the question of hypertension. Doctors Toland and Askey should be complimented on this report, which I feel is only preliminary to a much more extensive one on the same subject.

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DOCTORS ASKEY AND TOLAND (Closing).—The point we particularly wish to bring out is that there is no "typical" blood pressure in thyrotoxicosis. It may be accompanied by hypotension, normal blood pressure, or hypertension. Apparently the majority (62 per cent in our series) have normal pressure. The most of these were adenomatous patients and definitely toxic.

Many, however, were of the exophthalmic type, and failed to show the so-called typical lowering of the diastolic pressure and elevation of the systolic pressure.

The peculiar selectivity by which the thyroid toxin produces hypotension in one individual and hypertension in another has not yet been adequately explained by the physiologists. The discussion has emphasized the better prognosis for reduction of hypertension after thyroidectomy in exophthalmic goiter.

We believe, as does Doctor Ruddock, that tachycardia is largely responsible for hypertension in the exophthalmic goiter patient.

RETROBULBAR NEURITIS AND MULTIPLE SCLEROSIS

SOME OBSERVATIONS WITH QUANTITATIVE CHARTS AND REPORT OF CASE

PART II

By CLIFFORD B. WALKER, M. D.
Los Angeles

DISCUSSION by Dohrmann K. Pischel, M. D., San Francisco; M. F. Weymann, Los Angeles.

CASE 2.—Patient came under observation on March 11, 1930. Miss V. E. S. Age, eleven. White. Complaint.—Sudden blindness in left eye with circumocular pain.

History.—Child has had measles, Chicken-pox, very slight. Never mumps or whooping cough. She is a very athletic, romping youngster, especially as regards basketball and swimming. For two weeks had a "little cold" which took the pleasure out of her games because of tired feeling and leg ache. One week ago, although feeling quite well otherwise, awakened with a dull pain and tenderness in region of left eye and noticed she could hardly see out of left eye. Referred for question of sinus operation. Injury denied. No discoloration of affected parts at any time. X-ray and nose examination already negative by rhinologist.

Fundi show no departure from normal physiological limits, as seen by Dr. La Motte and myself. Color of disks rosy and same in both eyes. Pupils still somewhat dilated from previously used drops.

Vision: Right, 20/30; left, 20/100. Glasses do not improve. Parents and examiners of patient consider vision of right eye as good as ever and unaffected.

Fields: Figures 7 to 9 show both eyes affected in such a way as to suggest that the lesion (neuritis) is probably close to the chiasm or has extended to the chiasm. The fourth or final field on April 18, 1930, was entirely normal within physiologic variations. Space is too limited to reproduce it here. There has been no setback to date.

Comment.—In this case we have apparently the typical field series to be obtained in the typical case of retrobulbar neuritis, outlined in the carefully considered definitions summarized from the literature by Dunphy¹⁵ as a "rather rapid loss of visual acuity, with central scotoma and usually normal but at times varying peripheral fields. There may be pain and tenderness on moving the eyeball. The ophthalmoscopic picture is usually normal. One or both eyes may be affected. There is a definite tendency toward recovery, though in some cases damage is permanent."

It is possible that with the more prevalent use of quantitative perimetry it will be found, as our experience has shown, that the peripheral field can hardly be referred to as normal in most of these patients. To be sure, it is usually normal to ordinary tests, but to the 1/2000 or 2/2000 test objects contractures of the peripheral field are often demonstrable and are frequently more marked on the temporal side at some of the progressive stages. The enlargement of the blind spot may be in this same category that is really a peripheral contracture.

These two cases may be taken as typical of two usual types. The first or more common type in which the central field is depressed first and comes back last, and the second type in which it is depressed last or is more resistant and comes

back first. In addition, the type mentioned in the previous paragraph as a temporal or bitemporal tendency may represent the third group or may be combined with the first two. The recovery period in the ordinary type is seen to vary from three weeks to almost a year. It seems possible to guarantee that a case of retrobulbar neuritis may not finally turn out to be caused by multiple sclerosis. More of these cases because of limitation of space will not be included here,¹⁶ and only for comparison a few instances will be presented which have more notable suggestion of multiple sclerosis.

MULTIPLE SCLEROSIS

Possibly the inclination for certain cases of retrobulbar neuritis to show a tendency to a temporal or bitemporal defects may indicate a more posterior location of the point of maximum inflammation extending sometimes into the chiasm and affecting the crossed fibers more than the uncrossed. Multiple sclerosis may not only imitate these conditions, but may occur quite symmetrically in the chiasm, as first shown by Roenne,¹⁷ so that a chiasmal tumor may be so closely imitated that an exploratory operation may be justifiable in skillful hands.

Just such an instance is beautifully demonstrated in Cushing's monograph,¹ referred to in the beginning of this paper. The following case quite closely parallels that of Doctor Cushing's series in so many respects that it would probably require an exploring operation to make the diagnosis certain.

CASE 3.—Patient came under observation on February 1, 1930. Mr. E. R. N. Age, fifty-nine. White.

Complaint.—Failing vision of both eyes, more in the right.

History.—Ocular discomfort one and one-half years ago led him to change his glasses, but ten months ago definite impairment of vision of right eye was noted, which fell as low as 20/100 six months ago. Physicians could find no other trouble except a few faulty teeth, which were removed. Patient not subject to sinusitis, catarrh, or to colds.

Patient is slightly overweight and skin has just a suggestion of dryness, and yet other stigmata of hypophyseal dystrophy are lacking. Neurological examination is negative except as regards the eyes. X-ray and Wassermann examination are negative. Ocular examination discloses no abnormality except definitely pale optic disks and the field defect shown in Figure 10.

At the time of this writing some fluctuations, but no great change has taken place in the visual field and acuity. Sodium salicylate up to sixty grains a day represents the principal treatment that has been used.

CASE 4.—Patient came under observation on January 28, 1930. Mrs. H. K. Age, twenty-eight. Married; no children.

History.—Six weeks ago vision in the right eye failed, in the course of three days, and then remained blind for one week, according to the statements of patient and family physician. Although the eyeball was rather tender to the touch there was no noticeable cold or coryza during or just before this time.

One year ago, during February, patient had paralysis and numbness of right arm, lasting six weeks.

Four years ago (she was thought to have Landry's paralysis) was partially paralyzed from high waist line down, six weeks' duration.

Has had low posterior headaches for many years.

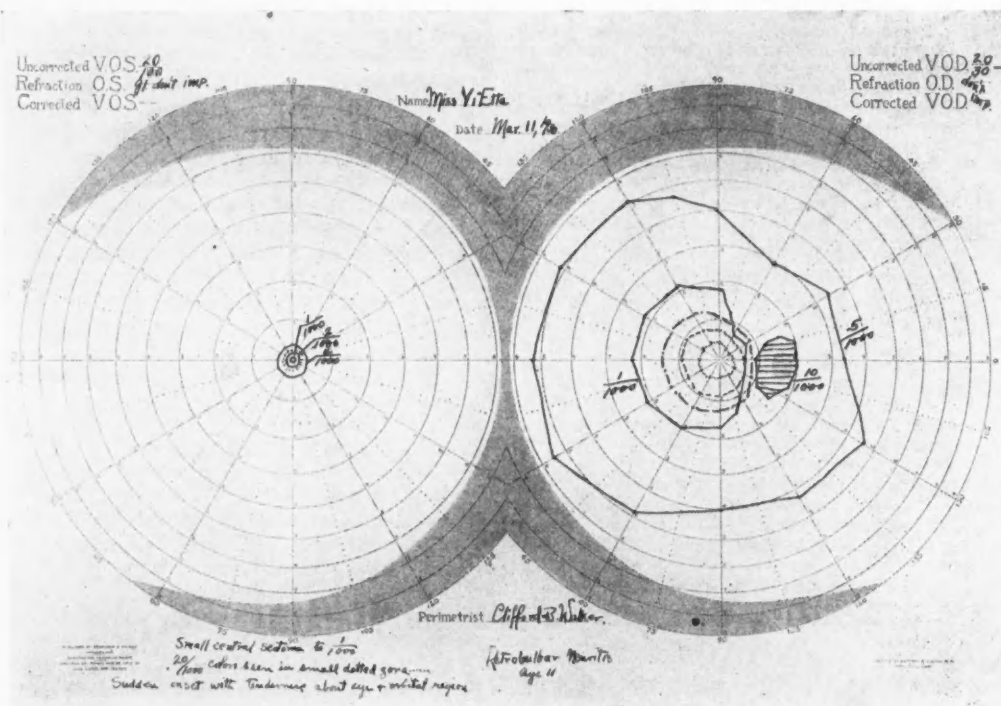


Fig. 7 (Case 2).—Retrobulbar neuritis, seventh day. Right field shows a shrinkage of the temporal field and enlarged blind spot; left field shows a general shrinkage and central depression, yet with preservation of colors, "tubular field."

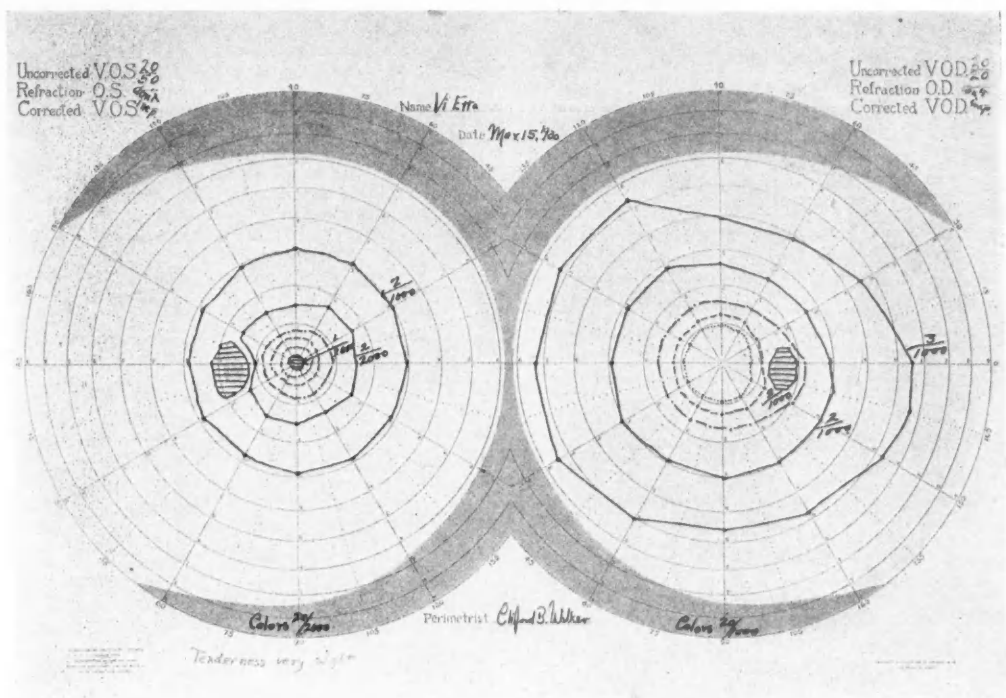


Fig. 8 (Case 2).—Retrobulbar neuritis, eleventh day. Improvement marked under treatment; relatively more rapid in worse eye.

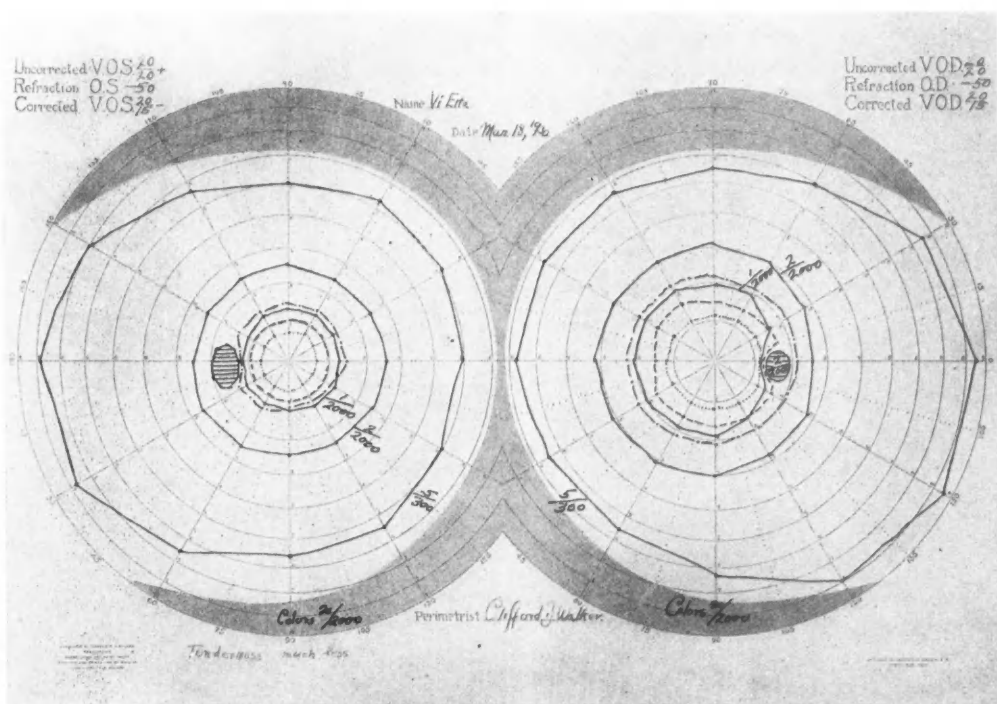


Fig. 9 (Case 2).—Retrobulbar neuritis, fourteenth day. Central vision normal in both eyes. Still some contraction for small visual angles and colors.

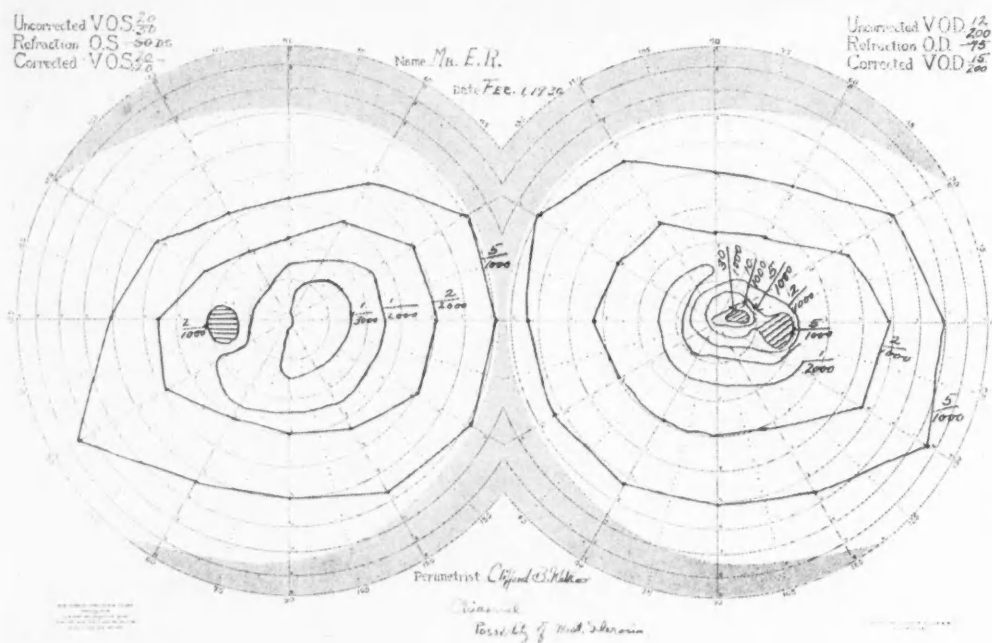


Fig. 10 (Case 3).—Superior bitemporal depression of field very suggestive of tumor (tuberculum sellae), but in the absence of every other confirmatory sign of symptom probability of multiple sclerosis (chiasmatic) remains.

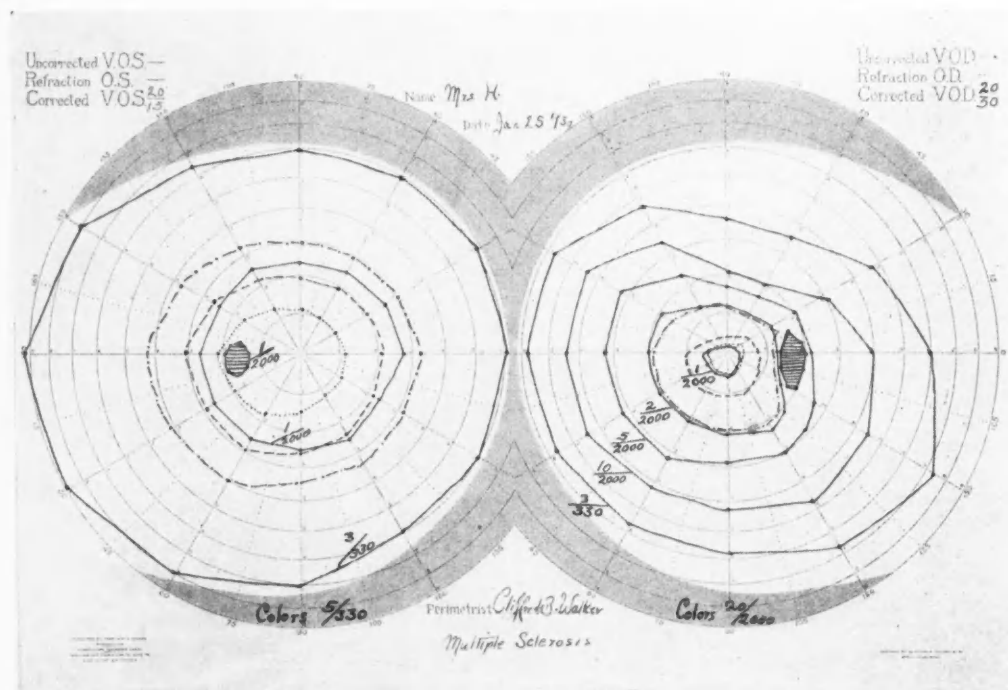


Fig. 11 (Case 4).—Multiple sclerosis. Again the tendency to upper temporal field contracture so commonly seen in retrobulbar neuritis and chiasmatic lesions.

At present the vision in the right eye has improved a great deal since the sudden blindness six weeks ago, and a careful field examination is desired with quantitative perimetry to make the diagnosis if possible.

There are no remnants of the previous palsies, and headaches have disappeared under medical treatment. The neurological examination by Dr. Leon Myers was negative. Wassermann, negative. Sinus x-rays were negative, and no calcification granules or bony distortion of the sella could be demonstrated by x-ray (American tubes). No evidence of scanning speech, tremor or nystagmus. Ocular examination disclosed no pain or tenderness to the touch.

No imbalance or limitation of motion of the eyeballs. Anterior and posterior segments of the eyes show normal pictures. Without the history, a perfectly normal appearance of the optic disks would be reported without doubt. Possibly a suggestion of pallor of the right disk. Fundus and tension were normal.

Fields (figure 11) show in the right eye only the peculiar tendency to upper temporal contraction with central depression as in the previous case, though less marked.

Comment.—The symptom complex of multiple sclerosis is not complete in this instance, yet it is perhaps considerably more suggestive than some of the others in which the diagnosis has inclined toward multiple sclerosis. It may take many years before the diagnosis becomes unquestionable, as for instance, in cases with a final confirmatory autopsy as reported by Nielsen, Wilson, and Dieterle.¹⁸ In one of their patients the earliest symptoms were noted forty-seven years before the correct diagnosis was carefully considered, this being done during the last year of the patient's life. The condition probably began at the age of twenty-six at which time deafness in one ear followed by Ménière's syndrome was a complication, in such a way as to indicate that multiple sclerosis could readily have been the cause of that also.

GENERAL OBSERVATIONS

As time goes on the indications are that more cases of retrobulbar neuritis will be transferred to the multiple sclerosis group.

In this series of cases it is notable that two reports have been selected from each group which seem to represent the group not only in characteristics, but also in number; that is, the proportion of 50 per cent each seems to be approximated.

Again the number of cases due to acute purulent involvement of the sinuses is limited in this series to not over four per cent.

A retrobulbar neuritis of more prolonged type (neighborhood of three months' duration without much improvement) must be differentiated from chiasmal lesions and multiple sclerosis. For instance, a question of Leber's disease as well as a Foster Kennedy syndrome, both thought to be of retrobulbar neuritic origin, might require such a differentiation in the early stages.

The nonpurulent instances of retrobulbar neuritis of short recovery period (neighborhood of three to six weeks) must receive a guarded prognosis since time alone may serve to differentiate from multiple sclerosis.

SUMMARY

1. More visual fields must be taken carefully by quantitative methods to render more positive differentiation of the causes of retrobulbar neuritis.

2. A series of quantitative fields, correctly taken by the same person at intervals corresponding to rate of suspected visual change, will be of the greatest value in differential diagnosis.

3. The one- and two-meter Bjerrum screen offers the most rapid and accurate¹⁹ method of obtaining measurements of the finer changes, often not even suggested by ordinary perimetric methods.

410 Auditorium Building, 427 West Fifth Street.

REFERENCES

15. Dunphy. Retrobulbar Neuritis. Arch. Ophth., 3, 208, 1930.
16. A total of twenty cases were presented by stereopticon slides at the annual meeting of the California Medical Association, Del Monte, 1930.
17. Walker, Clifford B. An instance where this occurred also in a case of acute retrobulbar neuritis with pus (proven by x-ray and operation) in the posterior ethmoidal group of sinuses has already been reported. Boston M. and S. J., 185, 321, 1921.
18. Nielsen, Wilson, and Dieterle. Pyramidal Degeneration Syndrome Due to Multiple Sclerosis. Bull. Battle Creek Sanitar. and Hosp. Clin., 25, 28, 1930.
19. Walker, C. B. The Time Element in Quantitative Perimetry. Arch. of Surg., 18, 1036, 1929, Cushing's Birthday Book.

DISCUSSION

M. F. WEYMANN, M. D. (2007 Wilshire Boulevard, Los Angeles).—Doctor Walker first became interested in the relationship between certain forms of retrobulbar neuritis and nasal infection in the latter part of his eye service at the Massachusetts Eye and Ear Infirmary. While on the ear service under Dr. Leon White in 1914, he did his first work in this connection by simple removal of the middle turbinates and ethmoid-sphenoid curettage on some patients obtained from the eye clinic. As these results were encouraging, he described this work to Dr. Leon Cushing, where all optic neuritis cases were considered due to intracranial pressure. Argument on this subject between Cushing and White has finally led to a concession of some points by each of them, and Doctor Walker has introduced the consideration of multiple sclerosis as an additional factor in his paper.

At the present time there is a tendency by the German and French writers to consider retrobulbar neuritis as a symptom of multiple sclerosis in the majority of cases.

Naturally the work of White in this country was received with favor by rhinologists, as it provided increased surgery for them, and by the ophthalmologists because it gave them some active treatment for retrobulbar neuritis. Sluder would open the sphenoids in such patients just upon finding a little glairy mucus, and I have seen some such patients in whom the immediate improvement was striking. One such patient operated upon for me showed marked improvement in the field by measurement on the fourth postoperative day.

Of course those physicians who do not admit that the sphenoids or ethmoids can be the cause of neuritis in the absence of pus would say that this improvement was a coincidence. My own attitude in the

matter is that many patients are unnecessarily operated upon, but that if I were the patient and my vision and field were progressively diminishing in spite of conservative treatment of several days' duration, I should submit to a sinus operation by a competent operator.

The theory that a filterable virus may be a cause in the production of retrobulbar neuritis is not untenable, but it would seem to me more likely that instead of the virus being both a cause of the influenza and the optic neuritis that the influenza or other such illness so weakens the constitutional resistance that a virus already existing in the nasopharynx is able to attack the nerve through dehiscences, or even thinned walls. It has been shown that many individuals carry the virus of herpes, which only becomes active and causes "fever blisters" after some exposure which lowers the resistance, such as febrile disease, sunburn, or mechanical irritation.

This problem of retrobulbar neuritis is still far from solved, but until more definite information is at hand we owe it to our patients and ourselves to take even radical steps, when necessary, with the hope of conserving their vision. There have been too many reports of improvement after sinus operations to disregard this factor entirely and ascribe all cases to multiple sclerosis. Nevertheless, from the evidence presented we can see that many cases are doubtless a manifestation of multiple sclerosis, so conservative therapy should always be given a fair trial.

Doctor Walker is to be commended for his painstaking observations and records, the collection of which has taken more time than we realize:

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DOHRMANN K. PISCHEL, M. D. (490 Post Street, San Francisco).—Is it not possible that European observers have reported such a high percentage of cases of retrobulbar neuritis due to multiple sclerosis because the latter disease is much more prevalent abroad than here in America. If one takes this fact into consideration the differences in the various figures given by observers can be easily understood.

LOW GRADE ETHMOIDITIS—AS A CAUSE OF CERTAIN EYE CONDITIONS*

By WALLACE BRUCE SMITH, M. D.
San Francisco

DISCUSSION by Dohrmann K. Fischel, M. D., San Francisco.

THE accessory sinuses of the nose are the subject of a great deal of discussion in the current literature and in the proceedings of the various ophthalmologic and rhinologic societies.

The rhinologists of the past generation worked out the anatomy, pathology, symptoms, differential diagnosis and treatment of acute and chronic accessory sinus diseases. The progress of this work was made through a fog of confusion and was relatively slow. There is still a great deal to learn and some things to unlearn. Closely associated with the rhinologist from the beginning has been the ophthalmologist. In this generation the growth of the idea of focal infection disease added to the importance of sinus disease, in relation to medicine visualized from a large general viewpoint. After the rhinologist and ophthalmologist, has come the internist with a whole new crop of conditions whose origin may be referable to the sinuses. The orthopedist came next with his

waves of stimuli and the pediatricist is the last from a major field of medicine to refocus attention to sinus infections. So when we have this summation of references to the sinuses we perceive their importance in that highest and most stimulating branch of all medicine, namely, clinical medicine.

It behooves the rhinologist to have an exact knowledge of nose anatomy, pathology and physiology, and he not only should be able to remove the diseased mucous membrane or bone or both, but also to leave the nose in such normal anatomical relation that there will be an ultimate restoration of physiology. It may not always be possible to remove all diseased tissue from the accessory sinuses but it is possible to leave the nose physiologically correct. With the aids of time, climate, diet and attention to the general health we can expect an improvement or healing. Ordinarily there is no operation on the sinuses save that for a concha bullosa, or air cell in the middle turbinate, which requires removal of either lower or middle turbinate. They carry on the main function of the nose as the thumb and index finger carry on that of the hand, and the turbinates should be accorded the same relative importance. Next in importance to their preservation is the necessity for straightness of the septum, which condition should be attained before surgical procedures on any of the sinuses.

ANATOMIC RELATION: THEORIES OF RELATION BETWEEN SINUS INFECTIONS AND TISSUES OF THE EYE

The whole question of sinus infection in relation to disease of the eye is, of course, too large for review in the few minutes allowed for this paper. We know that any eye condition which can be caused by focal infection may and frequently does have the sinuses as the originating focus. So out of the group, there has been selected for your consideration a condition which, on account of the interdependence of oculist and rhinologist, forms ever a high coordination point in our specialties. As such, it is a question of almost unending interest, hard at times to handle, and one in which the results vary directly as the experience and cooperative abilities of the physicians on the case. I refer to retrobulbar neuritis with central scotoma and to ethmoiditis as a cause of retrobulbar neuritis with central scotoma. A mass of literature and controversy comes to mind at the mention of it. One of the best papers in English is by White, who quotes from others at some length as to the manner in which the sinus disease produces the eye condition. The earlier writers stress the anatomic relation between the two. And in any sinus-optic nerve anatomy the name and vision of Onodi must always arise. There are few among you who have not seen, not only one, but many of his plates, in any treatise where head anatomy or accessory sinus anatomy is discussed.

REVIEW OF THE LITERATURE

Theory of Toxemia.—The toxic or blood stream view started in 1909 by Krauss, who noted

*Read before the Eye, Ear, Nose and Throat Section of the California Medical Association at the Fifty-ninth Annual Session, Del Monte, April 28-May 1, 1930.

the rapid recovery following the institution of adequate drainage and the fact that the maculae fibers are selected for the specific action by the inflammation.

Teillais in 1908 reported a case in which toxemia seemed to play a large role, viz., extraction of left molar, left antrum infected, other sinuses infected, orbital cellulitis, blindness and optic atrophy on the left side and a neuro-retinitis on the right side.

MacWhinnie in 1910 noticed increased fundus congestion following the probing of the sphenoid sinus. He mentions that there is no established relation between the lymphatics of the eye and the sinus other than the very noticeable widening of the perivascular lymph channels in the axial strand demonstrated first by Shieck pathologically. He reports five cases with good results and states that he believes it is a good practice to open the sphenoid. Also believes in the toxin absorption theory.

Gradle in 1915, after giving anatomic relations and blood supply of the optic nerve in accordance with the teachings of Onodi, Loeb, Vossius and Gray, says: "These anatomic facts explain the course of the disease from the accessory sinuses to the optic nerve. The infection, the edema, or whatever may be the disturbing factor, passes from the sinus periosteum through the diploic veins and lymph channels to the orbital periosteum, thence by continuity to the inter-canalicular portion of the dura of the optic nerve, or probably through the periosteal veins or the dural veins directly to the central vein of Vossius. If the dura alone is involved, thus causing pressure upon the periphery of the optic nerve within the canal, the peripapillary bundles alone will be involved and an enlargement of the blind spot will result. If the process extends further and involves the central vein of Vossius, surrounding it by an edema, the neighboring nerve bundles will suffer. These happen to be the papillomacular bundles and then results a central scotoma. Consequently, I believe that I am justified in stating (contrary to the teachings of Onodi and Loeb) that the anatomic relations of the sphenoid and ethmoid cells to the optic canal are immaterial when it comes to a question of optic nerve involvement in accessory sinus disease. The trouble is transmitted by the soft tissues alone."

Stark in 1916 says: "The eye symptoms of multiple sclerosis and sinus blindness which have been previously considered different diseases are to my mind the same . . . one being the advanced form of the other."

Vail in 1919: "The disease should be recognized and operation on the ethmoid performed at once in spite of its being normal in appearance."

Caldwell, Risley and Schimer have at different times brought out the detrimental effects of delayed surgery.

The best articles in the German literature are by Meller, who discusses the rhinologic origin

of retrobulbar neuritis, and Marburg, whose paper is on the multiple sclerosis origin.

These two conditions, sinusitis and multiple sclerosis, are the principal causes and are at times hard to separate. A multiple sclerosis patient in whom no discernible sign of his condition is present can develop an acute cold. This goes into an ethmoiditis and retrobulbar neuritis. Months or even years later the symptoms of his multiple sclerosis appear. The inflamed sinus touched off an eye condition long before it otherwise would have developed if it had followed the natural sequence of the primary underlying cause.

So it is possible for the two etiologic causes of retrobulbar neuritis to overlap and run for a time concurrently. Our main object, however, is the rhinologic class. Meller, after considerable argument, summarizes his conclusions in the statement that the rhinologist is the "ausführend organ" of the ophthalmologist; that the rhinologist should be guided by the eye findings and the opinion of the ophthalmologist rather than by the nose findings and opinion to be derived from the nose findings. I believe this is as nearly correct a statement as it is possible to formulate regarding procedure, provided the necessary examinations and consultations have previously been had with internist and neurologist.

ETHMOIDITIS OF NASAL ORIGIN

If now we were to set aside all cases save those of nose origin, it would be in order to say something of the findings in such cases. Let the point be emphasized again that these cases represent a high coordinating point in medicine and carry an interdependence on the findings of the ophthalmologist, neurologist and rhinologist. If any one of them is not able to carry his own end the favorable progression of the patient goes askew.

As far as my own experience goes, an ethmoiditis with the customary polyp formation does not cause the condition in question.

These cases may be classified into two groups; the ones with swelling and congestion of the nose mucous membrane, nose otherwise normal anatomically and physiologically, and the other with anatomical deviations. In the former there is usually a history of a previous acute cold. Simple treatment directed to relieve the congestion and allow drainage and ventilation in a short time will relieve the eye also. The other and larger group show a high septal deviation, usually to the side affected, or if toward the opposite side there is a concha bullosa lying in the concavity and blocking off the ethmoid on the affected side. The mucous membrane in this neighborhood may or may not show change. The septum in the lower part of the nose is or may be straight. The x-ray is usually negative and not of material aid. It should be made but not followed as to the part referable to the ethmoid. This nose finding does not warrant a surgical procedure if no eye condition is present. But in retrobulbar neuritis it is the usual rhinologic finding and if a submucous resection is done and the middle turbinate pressed

mesially the bulla ethmoidalis comes into view. The mucous membrane of the bulla shows little or no change. With a conchotome the ethmoid is opened. The findings in the ethmoid vary. Rarely is there free pus. The intercellular bone is broken down, soft and necrotic, the mucous membrane atrophic in places, other areas show hypertrophy, even to small polyp formation the size of a pea and lying wholly within the ethmoid labyrinth. The whole ethmoid is soft with a mushy feel and easily removed, very different from the firm, crisp feel of a normal ethmoid. After the ethmoid is curetted, the sphenoid is brought into view by pushing the middle turbinate laterally. To enlarge the opening in it is one of the simple procedures in rhinology. It seems to be rarely involved in this condition. The patient's eye symptoms show improvement within twenty-four to forty-eight hours.

SUMMARY

A certain number of cases of retrobulbar neuritis with central scotoma are caused by accessory sinus disease, usually ethmoiditis. Both the eye condition and the nose condition are ordinarily unilateral.

The toxemia or blood stream mode of transmission of the disease to the optic nerve is more probably correct than transmission by continuity or contiguity of anatomic structure.

All cases do not require operation.

The indication for operation rests principally on the eye findings, although careful inspection in the nose usually shows some mucous membrane change or anatomic anomaly.

Coöperation of rhinologist and ophthalmologist is essential to the patient.

490 Post Street.

DISCUSSION

DOHRMANN K. FISCHER, M. D. (490 Post Street, San Francisco).—In bringing the subject of retro-bulbar neuritis to our attention, Doctor Smith shows the importance of this condition. Further, in his paper he properly emphasizes the need for close coöperation between the ophthalmologist and the rhinologist. But the coöperation must go farther, for the internist and neurologist should be consulted, and in short order. The fulminating character of many of these attacks leaves no time for temporizing if good vision is to be saved for our patient. Therefore, especially in view of the increased division of our efforts in the various specialties, coöperation must be stressed again and again.

As the ophthalmologist practically always sees the patient first, the responsibility for quickly making the correct diagnosis rests with him. There are certain classical signs and symptoms in the usual case. The patient comes with a history of sudden poor vision in one eye. He may give the history of a recent cold. Possibly, also, he experiences pain on moving the eyes, or on pressing it back into the orbit.

On examining the eye the fundus is usually normal. Thus, as one of my teachers used to say, "In retro-bulbar neuritis neither the patient nor the doctor sees anything." Occasionally an engorgement of the vessels of the optic disc can be seen.

We naturally test the vision first, and find it very poor, 20/100, 20/200, frequently less. Next the field is taken for form and found normal. Testing for a central scotoma we get a definite pathological finding. An absolute, or even a relative central scotoma

is found, if not for white, then for colors, red and green especially. The blind spot is often enlarged.

Here then we have a classical set of signs; normal fundus, poor vision, normal field, central scotoma. The diagnosis of retro-bulbar neuritis stares us in the face. So far all has been easy.

In differential diagnosis, optic neuritis has been ruled out by the normal fundus. By questioning we should be able to eliminate toxic amblyopia, due to chronic use of alcohol and tobacco, as well as more acute intoxications.

The etiology must now be established. The rhinologist is called upon for his findings, concerning which Dr. Smith has spoken. The neurologist must be consulted to rule out multiple sclerosis, which condition is fortunately rarely found in America. But no time should be lost in formal reference of a patient to someone who is so busy he cannot see the patient until the end of next week. If a man is not awake to the sight-destroying possibilities of retro-bulbar neuritis he will be of little help as a consultant. I do not mean to urge hasty action based on poor examinations and poorer diagnosis, but prompt examinations and close coöperation are vital.

There is no time today to enter upon the various views held by some men that most cases of retro-bulbar neuritis are due to multiple sclerosis, and the benefit resulting from intra-nasal work is only coincidental, with a recurrence bound to come later. I can merely say that to anyone who has watched the vision drop from 20/70 to approximately finger-counting in two or three days, masterful inactivity is impossible. If any vision is to be saved, it must be saved quickly. If the case has been handled by a competent rhinologist—and here I stress the word competent, for I am aware of the danger of bungling in the ethmoid region—the very few cases which, after many years, finally turn out to have been due to multiple sclerosis, will be none the worse for having had their ethmoids opened. On the other hand, those in whom the disease was of rhinogenic origin will have been given back normal vision due to the intelligence of their medical advisers.

Formerly all good rhinologists were loath to operate on a patient when they could not see any definite pathological changes. It was with great reluctance, and under great pressure from the ophthalmologist, that they finally did operate. Recently, however, they have learned of the good results their surgery brought, and are coöperating enthusiastically.

As you all know, an extensive operation is not always necessary. Sometimes, as Herzog recommended, shrinking of the nose on the affected side with cocaine and adrenalin or ephedrine packs once or twice a day will suffice to cure the disease. If not, actual surgery must be resorted to, but not too late, or part of the optic nerve will be permanently damaged, with no possibility of normal vision. Recovery takes place very rapidly, as I will show by citing two cases.

* * *

CASE 1.—Mr. J. P. Age 29. January 22, 1929.

History—Blurred vision in left eye past twenty-four hours. **Status**—The right eye was normal throughout. Left eye, field normal periphery. Central scotoma for white. Left eye vision 20/70. Fundus, normal. On January 23, 1929, the tests were repeated with the same results. Blood Wassermann negative. Roentgenological study of the sinuses and optic foramina showed normal conditions.

Examination of the nose showed slight congestion of the mucous membranes. A deviation of the septum narrowed the left portion of the nose, with several contact points between it and the middle turbinate. After shrinkage some mucus was seen. Probe puncture of the left antrum was negative. The upper part of the nose was packed with adrenalin tampons twice on this day.

January 24, 1929. Vision of left eye 20/40. Central scotoma smaller. Nose was packed again.

January 25, 1929. Vision of left eye practically 20/20. No central scotoma. Nose packed for the last time. Before patient was finally dismissed his vision had improved to 20/15.

CASE 2.—Mr. J. O. Age 64. A former patient, came in May 2, 1929, stating that the vision of the right eye had blurred the past two days.

Status.—The left eye was normal throughout.

Right eye.—Vision 20/100. Normal field, large central scotoma for white.

Right side of nose, which showed marked deviation of the septum, was packed with a tampon of adrenalin and ephedrine. Two days later the vision had dropped to less than 20/100. His nose was again packed. Two days later his vision had fallen to 10/100. The next day it was 5/100 in spite of repeated nasal tampons. On May 8, an operation was performed, straightening the septum and opening the ethmoids. Six days later the vision was 20/50, and two weeks later was up to his normal visual acuity, with no central scotoma.

RAYNAUD'S DISEASE—RECENT EXPERIMENTAL STUDIES*

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DISCUSSION by C. Latimer Callander, M. D., San Francisco; Henry H. Lissner, M. D., Los Angeles; William H. Barrow, M. D., San Diego.

DURING the past year work was undertaken, in collaboration with Sir Thomas Lewis,¹ to demonstrate the applicability of certain experimental methods of studying the blood supply of the human skin, to specific clinical problems. Raynaud's disease was chosen as the malady best suited to this purpose.

In this malady the digits become periodically pale or cyanotic, and, after several winters with repeated attacks, may show loss of tissue by a process of slow, dry gangrene. It is generally assumed that an obstruction of the blood flow to the digits underlies the condition; but the site of the obstruction, its nature, and the way it is brought about, has been open to debate.

Very little has been added to the admirable description of the visible phenomena since the publication of Raynaud's monographs in 1862 and in 1874; and it was thought that no point would be gained by proceeding further with the observational method. The experimental method was, therefore, employed to investigate the condition of the hands during the actual attacks, to discover the circumstances under which such attacks occur and subside, and to induce the attacks and analyze the various factors and the mechanism underlying them.

STUDIES ON TEMPERATURE SUITED TO ATTACK

In the beginning some difficulty was experienced in determining the temperature most suited to the production of an attack, the necessary time

of exposure, and the temperature of the room necessary to maintain an attack. It was found that overcooling of the digits by immersion of the hands in cold water (5 to 10 degrees centigrade),[†] or exposing the hands to a low outdoor temperature through an aperture, with the patient remaining in a warm room, led to failure to induce attacks. Studies of the surface temperatures on the fingers of patients during attacks showed a range from about 15 to 18 degrees. Subsequently we were frequently able to bring on attacks indoors by immersing the hands in water at 15 degrees, for periods of ten to fifteen minutes, and in several cases over a very wide range of room temperatures. The reasons why overcooling by immersion fail are: (a) The minute vessels of the skin in these cases react as do those of normal skin to excessive cold (0 to 10 degrees) by dilating; and pallor tends not to occur, therefore. (b) Dissociation of oxy-hemoglobin does not occur, or occurs only slowly at these temperatures; this hinders or prevents cyanosis. (c) Excessive cold (0 to 10 degrees) induces an after-reaction in the skin, tending to dilate the arterioles; this reaction, though far less free than in normal subjects, always happens, and, by establishing a flow of blood through the skin, maintains a healthy-looking color.

In carrying out our study, nine out of many patients examined were selected for more elaborate tests: three patients representing the more advanced stage with dry gangrene of one or more finger tips; two patients in an intermediate group; and four patients of the milder type, and without loss of tissue. The main part of our studies occupied the months from November 1928 to April 1929, and included a long period of very cold weather in London, extending from early in December to the first week of March.

Observations were made during a large number of attacks from their very beginnings, and many were induced under control conditions with the hands kept at rest. The onset, as indicated by color changes, usually took place within ten to fifteen minutes, at a room temperature of from 10 to 18 degrees. Immersion in water at 15 degrees was also usually successful in initiating attacks. In one case we were not successful in showing the influence of cold. Emotional factors may have played some rôle in bringing about variable results in this case.

Recovery from attacks begins with a restoration of normal color within a few minutes to an hour, if the room temperature is brought to 20 degrees or more.

In milder cases the recovery at ordinary room temperatures was often rapid, with at first an increase in the depth of the violet tint. Then a bright red spot or streak would appear near the base of a finger, rapidly spreading over the finger and persisting. The temperature of the skin soon began to rise, and within about twenty minutes was very much above room temperature. This indicates an increase in the circulation and flooding with fresh oxygenated blood of the fingers,

[†] Temperatures throughout are in the centigrade scale.

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due to release of preëxisting spasm of vessels. This reaction in the milder cases indicates the response to overcooling, which assumes importance when the question of therapy is considered.

In the severe cases the temperatures of the skin closely followed the temperatures of the surrounding air. Recovery in ordinary room temperatures was slower, and frequently progressed only partially, the skin becoming bright red or salmon color in patches near the bases of the fingers, and then gradually returning to the violet tint. This return to the cyanotic tint was more noticeable at lower temperatures. These minor stages of recovery frequently were unaccompanied by changes in temperature, and indicate the release of a very small trickle of arterial blood, which is not sufficient in amount to alter the temperature of the finger. A slight release of the spasm of the arterioles is sufficient to account for the change in color from violet to red; and the gradual return to the cyanotic tint is explained by the slow oxygen-carbon dioxide exchange at this temperature. The play of colors so often described in this disease is thus readily understood. It does not indicate that the vessels are completely released from spasm.

The reaction to overcooling has been previously mentioned. In the normal subject at moderate room temperatures, a finger which has been cooled in water at or near 0 degrees for five or ten minutes, withdrawn and gently wiped dry, subsequently shows a reaction, and becomes a good deal warmer than the adjoining fingers. This reaction is usually at its height in about fifteen or twenty minutes, and continues for an hour or more. Simultaneously, the skin of the cooled part becomes bright red. These changes are due to an increased circulation to the part. This protective mechanism is of great importance to the individual, and aids in his protection during cold weather.

In milder cases of Raynaud's disease, the reaction to overcooling approaches that seen in normal subjects; whereas, in the more advanced cases the reaction is very slight, or absent. The skin may become reddened; and this may persist for hours, but indicates only a slight vasodilatation. Repeated exposures of the finger or hand may maintain an improved circulation in the part and prevent attacks of cyanosis, as will be discussed later.

A test was employed to show the rate of blood flow of a small area of the skin. When immersed in water below 10 degrees or above 40, the skin becomes red. Between these temperatures there are normal variations from cyanosis (at 20 degrees), which gradually changes to red as the higher temperatures are reached (40 to 45 degrees). In the more severe cases of Raynaud's disease, the full cyanotic tint persists until the temperature of about 30 degrees is reached; and then there is a rapid change, approaching the color tints seen in the normal subject above this point. In milder cases the curves approach the normal. This indicates that the state of the vessels in these cases deviates but little from the

normal, when the fingers are kept above the temperature necessary for the production of an attack. In the more severe cases the vessels remain in spasm until much higher temperatures are reached (25 to 30 degrees). At the higher temperatures (40 to 45 degrees), the vessels in the severe cases are capable of a nearly normal expansion.

STUDY OF BLOOD VESSEL INVOLVEMENT

Studies were made on the vessels involved in the spasm, their direct stimulation, and their capacity to dilate. It may be assumed that the circulation is stopped in the fingers during an attack of deep cyanosis or marked blanching. If the finger is cut it does not bleed. Numbness appears within fifteen or twenty minutes after the onset of the attack, indicating that the nutrition of the sensory nerve endings is impaired. If the skin of the finger is examined microscopically during an attack, it will be seen that the circulation has stopped in the small field examined. Obviously none of these tests of cessation of blood flow can be used practically and with sufficient accuracy for repeated observations. We have found the color scale,² where a tint XIV or XV indicates full cyanosis, and VI and VII a full hyperemia, to be a reliable guide. Full cyanosis develops after the circulation has been deliberately shut off to a part, and the fingers kept warm. It is essential that the skin be of good color, and the vessels full (as by reactive hyperemia) when the circulation is obstructed, as a pale tint is not readily determined. When the full cyanotic tint appears under test conditions, while the finger is cold (15 degrees), one can assume that the circulation to the part has stopped; and if such tints appear in a warm finger, it can be assumed that the circulation in it is greatly reduced.

In spontaneous attacks of cyanosis in Raynaud's disease, the discoloration appears first at the tips of the digits and moves toward their bases. During the stage of recovery the clearing-off process first manifests itself at the bases or along the sides of the proximal phalanges; and quickly or intermittently the fingers become a bright red color again.

It was abundantly shown that the veins of the hands and fingers play no part in the vascular spasm. There is free passage from the minute vessels of the skin to the main veins of the arm.

The radial artery or the other main arteries to the hand were not found to be directly concerned with causation of the attacks. The radial pulse could always be felt during attacks, although in some instances the entire hand was affected to the wrist. The radial pulse may be small; but this phenomenon is to be observed in normal persons when the hand is cold, and therefore lacks significance.

The actual site of the obstruction required further study. When the circulation to the fingers had ceased, in attacks, it was found that exposure to warmth by soaking the hand in hot water (40 to 45 degrees) would quickly restore the pink

or red color. If only the distal half or two-thirds of a finger, in attack, is exposed to hot water, there is only an increasing depth of color in the skin of the part submerged. There is only local dilatation of vessels; and there is no relief of the spasm which exists in the main digital arteries above the water line. If, however, the palm of the hand is warmed, including the bases of the fingers, the spasm of the vessels relaxes, and the color gradually returns to the finger as circulation is restored. There is evidence that the digital arteries, during an attack, are in spasm throughout their length. Smaller arteries or arterioles in the fingers and vessels of larger order and of the palmar arch, may also be simultaneously involved; but it is obvious that the chief fault does not reside in these vessels. There is also no evidence that a central reflex mechanism is active in the onset or offset of attacks.

Spasm has been produced by local cooling. In the case of fingers the area of cyanosis is less than the cooled part, indicating spasm of the deeper vessels, instead of spasm of the cutaneous branches. If some of the fingers and the corresponding side of the palm (*e. g.*, ulnar) are immersed, then the fingers show circulatory arrest in their whole length. Observations were facilitated by the use of a special tank in which the arm and hand could be cooled to any desired temperature (usually 10 to 15 degrees), and the fingers, which were passed through openings, protected by thin rubber membranes, could be maintained at a higher temperature (30 degrees) to determine the onset of cyanosis. It was found that if the fingers were kept at lower temperatures (10 to 15 degrees), the appearance time of cyanosis was delayed because of the slow, gaseous exchange. Furthermore, the degree of cyanosis was more difficult to evaluate when the skin was pale. It was necessary to cool the hand to the bases of the fingers, while the fingers beyond this point were kept warm (at 30 degrees) for the reason stated above, to bring on attacks of cyanosis—again showing that the digital arteries at their origins in the palm are closed by spasm under the conditions of cooling.

Another test which was devised showed that the palmar vessels near the bases of the fingers must be cooled to bring on attacks in the entire finger. A stream of cold water (at 10 degrees) was passed through a flat lead box, resting on the palm of the hand to the bases of the fingers. The hand was submerged in a warm bath at 30 degrees. After fifteen or more minutes, attacks could be produced if the box was properly located to include the bases of the fingers. By proper adjustment, a single finger could be put into attack. Recovery took place by passing warm water through the box, or immersing the palm in warm water after the box was removed. Another method of inducing spasm in a single finger was used in the more severe cases. A brass capsule with thin, perforated rubber membranes at each end was placed on the finger; and water at 10 degrees passed through it while the hand was submerged in a bath at 30 degrees. By this method,

cyanosis would be produced in the last phalanx, and recovery take place when warm water was again passed through the capsule. These observations show that different parts of the digital vessels are equally acted upon by the cold stimulus. They are of great importance when one considers the conditions of exposure of patients suffering from this malady. The fingers are of smallest circumference, and quickly lose heat at lower temperatures. The vessels contract, and the effects are first manifested at the finger tips, gradually moving toward the bases of the fingers. If the exposure is long enough the vessels in the palms are likewise sent into spasm. Further exposure may affect the vessels of the entire hand, or, in some instances, may advance to even larger vessels in the arm.

There is no conclusive evidence that vascular spasm in these cases is a local vasomotor phenomenon. The effects of direct stimulation of the vasoconstrictor fibers and reflex vasomotor impulses are conveyed widely. The theory of a reflex mechanism responsible for the local changes presupposes a complex system of selective areas in the central nervous system which is not supported by any direct evidence. One can only conclude that the peripheral vessels in these cases are hypersensitive to local cooling and that the central nervous system takes no part in the reaction.

Experiments were devised to show whether the changes in the vessels were due to spasm alone or whether the vessels were principally the site of structural changes. Studies on pulse volume showed that in the milder cases the vessels were quite capable of expansion as the temperatures were increased. In the more severe cases, with loss of substance, the vessels were less readily opened by increasing increments of heat; but were almost as widely dilated at higher temperatures (from 40 to 45 degrees), as were normal vessels. There was very little circulation to the fingers until a temperature of about 30 degrees was reached, which corresponds to the changes in color which were found to occur at about the same point. It is obvious that the loss of substance in these cases at the tips of the fingers is secondary to long-sustained arrest of circulation in these parts. At ordinary room temperatures (under 30 degrees) the vessels are incapable of more than partial relaxation.

There was not enough evidence in our patients to show that the small superficial vessels in other parts of the body were sufficiently involved to lead to serious results. In patients where local necrosis has occurred at the tip of the nose or the tips of the ears or elsewhere, it may be assumed that the local vessels are also at fault.

It is well known that the depth of color in the fingers during attacks varies from a pale, waxy color to a deep violet tint. We were able to show that the depth of tint depended upon the amount of blood in the minute vessels at the time of onset of the attacks. Too much attention has been given to the symptom of pallor. It has no great significance, and is not an essential phase of the phenomena of attacks. In no instance where the

attacks were observed from their onset, either spontaneously or experimentally induced, was the waxy or so-called "dead white finger" observed. This phase is artificial, and brought about by involuntary movements of the fingers during the onset of attacks, when the fingers are rubbed at the first appearance of sensation of cold in the parts; when tight gloves are worn; or under similar conditions which may remove the blood from the periphery. The original statement of Raynaud, which has since been frequently repeated in the literature, that the colors observed during an attack are at first white, then blue, and finally red in the stage of recovery, needs revision. The white stage is entirely artificial.

When blanching occurred in the affected parts, the minute vessels were shown to be in a state of contraction. Increase of venous pressure in the arm to 40 millimeters Hg produced cyanosis in the extremity to the areas of blanching. These slowly cleared if the pressure was maintained. If at any stage the pressure was released, the remaining blanched areas tended to remain so; and the hand on the opposite side continued in the blanched state. It would be difficult to explain these phenomena on the basis of central or vasomotor influences. The appearance of Bier's spots or local areas of blanching of skin, strongly suggest local spasm in smaller vessels. They appear in skin which has been deprived of all nerve supply.

STUDY OF INFLUENCE OF VASOMOTOR NERVES

Much is being written on the influence of vasomotor nerves upon spasm of the peripheral arteries in this and other diseases. There is no direct evidence that the vasoconstrictor impulses exert more than a tonic effect upon the muscles of the arterioles. While an interruption of the central impulses may remove to some degree the tone of the vessels, and does so in the normal individual, there is insufficient proof that it is a major factor in causing the symptoms of Raynaud's disease. Published reports on ramisection and ganglionectomy are inconclusive on this point. By relaxing the tone of the vessels the circulation to the part may be improved, and the resultant temperature may be elevated, requiring a greater amount of cooling to give local spasm of the vessels.

On several occasions we resorted to local anesthesia of the ulnar nerve during attacks. With the skin completely anesthetized over the area of ulnar distribution and the corresponding area of vasomotor dilatation outlined by hyperemia and other local effects—dryness, increased temperature, etc.—it was possible to initiate characteristic attacks by suitable methods. It may be assumed that the vasoconstrictor nerves pass to the extremity with the mixed nerves, and that they have no connections of any length in the sheaths of the vessels themselves.

These points, however, are not advanced as an argument against the practical value of ramisection, particularly in mild cases, as the removal of vasomotor tone might compensate for a partial loss of the local reflex mechanism.

On theoretical grounds it appears unlikely that all the possible vasoconstrictor connections to the brachial plexus should be severed to bring about vasomotor paralysis to the arm. One would not expect that the lesser connections through the first and second dorsal nerves would exert any great tonic action on the state of the vessels of the entire arm and hand. The proponents of such extensive surgical procedures have been swayed by the almost universal acceptance of Raynaud's view that the spasm of the vessels was due to nervous influences. One cannot state that the vasomotor influence can be ignored in considering this disease. Given proper conditions, the central impulses may turn the balance to decide the resultant effects in the extremities. This may be shown by experiments conducted in rooms of different temperatures. When attacks cannot be brought on in rooms at high temperatures, they may then occur if the room temperature is greatly reduced. The same results may be obtained if severe pain is produced. There is no direct evidence that this influence is any greater in a patient with Raynaud's disease than in the normal individual. Our view is that the defect in these cases is a local one, as has been amply demonstrated. The confusion which has existed from Raynaud's time respecting the vasomotor influences has been largely due to the inclusion of patients with general nervous phenomena in the group classified as "Raynaud's disease." We described one such case. We were unable to find any evidence of spasm in the retinal vessels, which is described in the literature, in this or in our other patients.

Before much further advance is made in the knowledge of this disease, it is necessary to carefully segregate the different types now vaguely classified as Raynaud's disease. In the type we describe, the condition of the digital arteries is peculiar. They show a direct reaction to low temperatures, with spasm accompanied by discoloration; and, eventually, nutritional changes appear in them. The relationship with local or general scleroderma and with local arthritic changes is not entirely clear, but it may be surmised that these latter conditions are secondary.

SUGGESTIONS FOR TREATMENT

Suggestions for treatment may be premature at this time. However, observations resulting from overcooling in the normal and in the group of cases studied are of interest. Our early failure to provoke attacks was due to a lack of appreciation of the mechanism of this reaction in our cases. In the normal individual an exposure to temperatures of from 0 to 10 degrees for several minutes results in a reaction which increases the circulation of the cooled part, and a consequent elevation of the temperature above that of the uncooled areas. This appears to be a normal biological protective mechanism. In the milder cases, without loss of tissue, the mechanism is but slightly altered, but in the advanced cases, with local necrosis, there is little or no reaction to overcooling. The color may become red, but the tem-

perature of the skin follows closely the room temperature. The normal reaction persists for an hour or more, with the part at rest, but may be more prolonged if the individual is actively moving about. In one of our more severe cases the circulation in one hand seemed improved over its fellow during repeated exposure, and persisted after the treatment was stopped. In another instance the treatment was discontinued because of pain accompanying the treatment.

Since our observations were published, the author has had an opportunity to study other patients showing milder degrees of severity, where one might expect to obtain better results from treatment. In them exposure of one hand to temperatures between 4 and 10 degrees would keep this hand red and warm and free from attacks, whereas the untreated control hand would show repeated attacks. It would seem advisable to avoid pain if the patient is to cooperate in treatment. The treatments should probably be given two or three times a day. They may at first be given and followed by gently warming the part in water or by placing the hand against a warm part of the body. Showers or tub baths with water at gradually lower temperatures may also be instituted.

SUGGESTED PLAN OF TREATMENT

A suggested plan of treatment is as follows:

First Week.—One hand or foot, preferably the one more seriously affected (companion as control), immersed in water at 10 degrees centigrade three times a day for ten minutes. Severe pain or faintness to shorten period of exposure, or time for reducing temperature.

Second Week.—Temperature reduced to eight degrees.

Third Week.—Temperature reduced to six degrees.

Fourth Week.—Temperature reduced to five degrees.

Fifth Week and Thereafter.—Temperature reduced to four degrees.

It is to be understood that this outline is merely suggestive. When quite certain that beneficial results are being obtained, shower or tub baths of decreasing temperatures may be instituted. If possible, treatments should be started before cold weather begins. The effects of the reeducation of the reaction to cooling may be studied, by following the surface temperatures, with the thermocouple under control conditions. Contrast baths may be used at first if desired.

Results of treatment in patients with Raynaud's disease, scleroderma and hypertrophic arthritis suggest that the principles outlined above may have a wide application. This method may also be used in the treatment of chilblains. The value of the empirical use of cold baths in the prevention of the common cold may well be due to the stimulation of this reaction as a protective mechanism against cold. The common cold may be found to be primarily a failure of this mechanism. Studies with this possibility in mind are being undertaken.

SUMMARY

A variety of Raynaud's disease has been studied. It is the form in which the digits become periodically pale or cyanotic, and in which, after several or many winters of repeated attacks, terminal portions of the digits may be lost by a process of slow, dry gangrene.

The circumstances in which attacks appear and disappear have been carefully observed. In mild cases there is but slight variation from the normal; but in severe cases the fingers slavishly follow the environmental temperature. These fingers do not react to overcooling as readily as do normal fingers, and are the ones which develop local gangrene.

The immediate cause of the defective circulation is spasm of the digital arteries. These vessels in the milder cases are capable of full expansion, and nearly so in the severe cases.

The meaning of the various discolorations, cyanosis, pallor, reddening that are displayed is discussed.

Local applications of heat and cold show that the spasm is profoundly influenced by temperature, in response to which the vessels behave abnormally. These observations are contrary to what would be expected if the current views ascribing the spasm to vasomotor influences were true; the abnormal element in the reaction to cold is a direct reaction, and is due to a peculiar condition of the vessel wall locally; it is not the result of a reflex action through the vasomotor nerves. The state of vasomotor nerves naturally influences the tone of the vessels in these patients, as it does in normal people; but the pathological element in the vascular spasm is not of central nervous origin, as at present it is generally thought to be. The effects of interfering with the nerves to the affected parts, by local anesthesia or by surgical division, are briefly discussed.

Suggestions for a rational treatment are given on the basis of original observation, and results achieved on a limited number of cases are mentioned. Further studies are being made in this direction. Certain frequently associated conditions are mentioned, and the application of this method of treatment to these and other disorders is proposed.

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REFERENCES

1. Lewis, T., in collaboration with William J. Kerr. Experiments Relating to the Peripheral Mechanism Involved in Spasmodic Arrest of the Circulation in the Fingers, a Variety of Raynaud's Disease. *Heart*, Vol. xv, No. 1, pp. 7-101, 1929.
2. Lewis, T. Standard Colors for Use in the Study of Vascular Reactions of the Human Skin. *Heart*, Vol. xv, No. 1, pp. 1-7, 1929.
3. Lewis, T., in collaboration with Dr. I. Haynal, Professor W. J. Kerr, Mr. Edward Stern, and Dr. E. M. Landis. Observations Upon the Reactions of the Vessels of the Human Skin to Cold. *Heart*, Vol. xv, No. 2, pp. 177-208, 1930.

DISCUSSION

C. LATIMER CALLANDER, M. D. (450 Sutter Street, San Francisco).—Much that is commendable might be said about many of the phases of Doctor Kerr's

work as outlined in this splendid paper. To a few points I would like to draw attention.

Doctors Kerr and Lewis, like so many English investigators, have utilized simple apparatus and easily controlled methods in the pursuance of their problem. Furthermore, they have chosen for their work Raynaud's disease, for which they had plenty of clinical material available. In London, where the weather is severe, there must be many more cases at hand and their symptoms must be more pronounced than occurs in California, where a true Raynaud's syndrome, in my experience, is unusual.

It is interesting that these investigators have spent little time discussing the so-called ischemic stage in this condition (pallor symptom). It seems reasonable that this is a phenomenon secondary to rubbing and clenching of the parts in an effort to lessen the discomfort. It is rare to see Raynaud's disease where the ischemic stage is a significant sign.

Doctor Kerr has noted only a slight hyperthermic reaction to overcooling in advanced cases, while he finds a very definite increase in temperature in the early cases. We have noticed that the affected extremities of patients with advanced Raynaud's disease become less hyperemic after the immersion of the part into the cold water of the contrast bath than is manifested in patients in the early stages of the lesion.

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HENRY H. LISSNER, M. D. (Roosevelt Building, Los Angeles).—In reading Doctor Kerr's paper on Raynaud's disease one is impressed by the careful experimental methods employed and their easy application to the clinical phenomena of the disease.

For many years investigators have discussed the pathologico-anatomical situation of Raynaud's syndrome, and while there is much to be said in favor of arterial disease in the experimental data presented, sufficient evidence is not available to justify the conclusion of definite arterial change to the exclusion of the vasomotor influence, especially that of a sympatheticotonia.

A sympathetic nervous system imbalance from the standpoint of the vasomotor control is evidenced in many conditions which, while they are allied or considered with Raynaud's disease, do not present the same clinical picture. Demographia, erythromelalgia, scleroderma, arthritic changes, and blushing or paling in their physiological aspects seem to bear a definite relationship to some of the clinical phenomena found in sympathetic imbalance. Just as every allergic reaction does not produce asthma but may cause numerous other manifestations in various organs of the body, so vasomotor disturbances need not always work on the terminal arteries causing the Raynaud's syndrome.

When one considers the frequency of arterial disease met with in the ordinary course of the practice of clinical medicine, and the infrequency of the occurrence of Raynaud's disease associated with it, the question of climatic conditions, *i. e.*, continued cold or rapidly changing temperatures, must be considered to play an important etiological rôle through the nervous regulatory mechanism for the control or maintenance of the normal heat regulation.

As a matter of fact, Doctor Kerr admits in his experiments that exposure of normals does show that a nervous mechanism controls the arteries and argues that "The vessels were less readily opened by increasing increments of heat, but were almost as widely dilated at higher temperatures (from 40 to 45 degrees) as were normal vessels." From this observation it may be deduced that the spasm is not relieved as readily under the influence of an unstable nervous system as in a stable one, since the end result is a vessel of the same size in disease as in the normal, with practically the same reaction.

The theory that a lesion of the peripheral arteries may account for the symptoms of Raynaud's disease finds many supporters. Certain anatomical findings

have been cited as strong arguments by those who believe such lesions to be irrefutable evidence as opposed to pure theory.

Up to the present time, reported organic alterations in the vessels will not suffice to explain the symptoms any more satisfactorily than the theory of a central nerve affection of the sympathetic system.

Until more experimental data are offered which will more definitely remove this question from the realm of hypothesis, and which will consider intrinsic and extrinsic etiological factors, I will retain the opinion that sympatheticotonia has a great influence on the causation of Raynaud's disease.

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WILLIAM H. BARROW, M. D. (1400 Medico-Dental Building, San Diego).—The painstaking and carefully controlled experimental work on the effects of heat and cold stimuli in Raynaud's disease as reported by Doctor Kerr in this paper is an interesting and valuable contribution to the literature on the subject. It has been generally accepted in the past that Raynaud's disease was a manifestation of a "neuro-vascular diathesis" due to a sympathetic nervous system imbalance on perhaps a "neuro-endocrine basis." It has been felt that angioneurotic edema, scleroderma, intermittent claudication, erythromelalgia, certain forms of arthritis and other "vasomotor-trophic" disorders were closely allied etiologically. It has been recognized for some time that in the advanced cases of Raynaud's there were capillary changes and deformities, but it has also been believed that the disease was a generalized disorder and not due purely to local changes in the vessel walls as is Doctor Kerr's conclusion.

I saw recently a patient with Raynaud's disease, her symptoms and physical findings fitting the description of the disease as given by Doctor Kerr. I am reporting the case because it presents manifestations of the disorder which it would seem can only be explained on the basis of a generalized sympathetic nervous system imbalance. It is of interest that this patient's symptoms appeared with a change of environmental factors that subjected her to considerable psychic stress, and she reported that she was worse at times of particular nervous tension. She was subject to attacks of paroxysmal hematuria, having been cystoscoped at one time for this symptom with negative findings. She had had attacks of acute abdominal pain not entirely relieved by an operation for postoperative adhesions, and best explained perhaps by spasm of abdominal vessels. Her hands and feet were involved, the latter showing impending gangrene. At the time of her attacks of local syncope the radials were small in volume and the dorsalis pedis arteries did not have a palpable pulsation. This patient's feet often presented a waxy pallor of the distal parts, or of one or more toes or of disseminated patches when they had not been rubbed or manipulated or constricted. Usual medical measures, such as contrast baths, woolen stockings, local applications, massage, and sedatives, failing to give relief, she submitted to bilateral lumbar and later cervicothoracic ganglionectomies with a resultant restoration of normal circulation in her extremities. She has, however, had a recurrence of the hematuria and the abdominal pain. This patient was and still is subject also to attacks of angioneurotic edema.

Rountree and Ghrist recently reported some interesting observations on surface temperatures in normal subjects and in subjects with peripheral vascular disturbances as affected by the oral ingestion of ice water, indicating definite changes associated with the "pressor response to stimulation of the sympathetic nervous system," which response was, of course, no longer in evidence after ganglion resection.

In contradistinction to the suggestion in this work and in the case reported of the generalized nature of the vasomotor disturbance, an interesting case was recently reported by Cotton and Berg of a laundry worker who developed typical symptoms of Ray-

naud's disease in the thumb and index finger of the right hand, which had been traumatized by the constant sticking of pins into shirts over a period of years. Earlier involvement of fingers of the other hand indicated that the disease was a true Raynaud's and not a traumatic angitis. But the trauma had undoubtedly precipitated the manifestation of the disease in this part. Incidentally, this patient was relieved by vaccine shock. She also was reported as showing evidence of sympathetic instability, with a history of "goiter," and an exaggeration of the vasomotor as well as the deep reflexes.

It would seem that there may well be in this condition a combination of a central vasomotor imbalance with pathological changes in the peripheral vessels, the one reacting on the other. Such a combination probably exists in essential hypertension and is certainly possible in Raynaud's disease. The significance of the original work done by Doctors Kerr and Lewis cannot be denied, but there are certain clinical and experimental observations which do not seem to be clearly correlated with their hypothesis that the disorder is due entirely to a peculiar local condition of the peripheral vessel walls which causes the abnormal reaction to cold.

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DOCTOR KERR (Closing).—There is very little to add to what has already been presented in the body of this report. It is not the intention of the author to imply that there is any pathological lesion in the peripheral vessels in Raynaud's disease. The disturbance is essentially a physiological one which, if continued, will eventually result in local gangrene of the tips of the extremities. The vasoconstrictor impulses apparently act in maintaining the tone of the peripheral vessels, but play no rôle in the production of phenomena which we group under the term of "Raynaud's disease."

DIVERSION OF THE URINARY STREAM BY URETERAL TRANSPLANTATION—ITS INDICATIONS AND ULTIMATE RESULTS*

REPORT OF CASES

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DIERSION of the urinary stream by transplantation of the ureters into the skin, intestines, vagina, or urethra in incurable congenital and acquired malformations and lesions of the bladder relieves the inexpressible misery that these patients suffer, alleviates symptoms, lessens invalidism, and prolongs life. Unfortunately, the operation of ureteral transplantation is not performed early enough and these patients become progressively worse and finally die, not from the original bladder lesion, but from urinary stasis, sepsis, and uremia.

The indications for ureteral transplantation are extrophy of the bladder, extensive incurable bladder fistulae, malignant growths of the bladder and female adnexa involving the ureters, causing strangulation, incurable tuberculosis of the blad-

der, and incurable interstitial cystitis with formation of ulcers described by Hunner. Ureteral transplantation should only be performed as a last resort when all other therapeutic and surgical methods have failed to relieve the pathological lesion of the bladder or uterus. The patient is often a poor risk, having been weakened by months or years of suffering and by toxemia, and debilitated by lowered kidney function due to back pressure. Ureteral transplantation into the urethra and vagina is impractical in most cases because of the impossibility of securing a stump of sufficient length. The perfected operation of transplantation into the sigmoid gives excellent results, but is too extensive in extremely debilitated patients and still carries a high mortality. It is ideal for those patients suffering from extrophy in whom there were usually few renal complications. Transplantation of the ureters into the skin of the lower abdomen is simple, rapid and benign, and is an operation devoid of shock, which is well supported even by cachetic and debilitated persons. It also has the advantage of allowing for recognizing, studying, and caring for subsequent renal complications.

HISTORICAL NOTE

In 1869 Simon¹ accidentally cut the left ureter during the operation of ovariectomy and fixed the ureter to the skin of the abdominal wall. Later, in order to relieve the resultant fistulae, he performed a nephrectomy. Deliberate transplantation of the ureter into the skin was proposed by Hayes-Agnew² in 1881 and performed for the first time by Laurenze³ in Rome in 1888, but the details of the operation and the clinical course of the patient are lacking. In 1889 Le Dentu⁴ purposely implanted the ureter into the skin of a patient suffering from metastases of a cancer of the uterus which had involved the left ureter, and which had caused anuria of seven days' duration. The operation was successful inasmuch as the patient was relieved from urinary back pressure, but death occurred some thirteen days later from generalized carcinomatosis. Two years later Pozzi⁵ accidentally severed the ureter in removing an enlarged, adherent pelvic tumor. He transplanted the ureter into the skin of the lumbar region, but performed a nephrectomy some three months later to relieve the urinary fistula. The kidney in question was carefully studied by Albarrán,⁶ who noted that the organ was very little damaged, presenting only the phenomena of slight back pressure and a mild degree of pyelonephritis and very slight alteration of the parenchyma. The operation was later performed for incurable bladder lesions by Albarrán,⁶ Giordano,⁷ Zuckerkandl,⁸ and Frank.⁹ Legueu and Papin¹⁰ made numerous experiments on animals and cadavers in order to perfect the operation and made a detailed report in 1921, including nine ureterostomies on human beings. Following this, successful results were obtained by Huc,¹¹ Duvergey,¹² Day,¹³ Rosenkranz,¹⁴ and Ormond.¹⁵ In 1925 I had the privilege of hearing Papin¹⁶ de-

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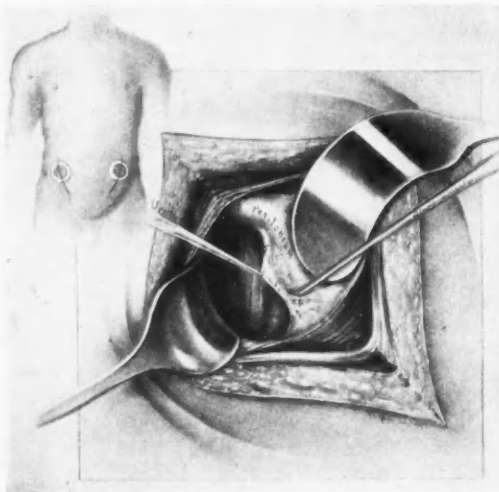


Fig. 1.—Ureterostomy into the skin. The ureter is freed from the posterior peritoneum by blunt dissection, care being exercised not to traumatize the ureter in order to avoid necrosis. Note ideal area of transplantation in the iliac portion of the lower abdomen in insert of upper left-hand corner.

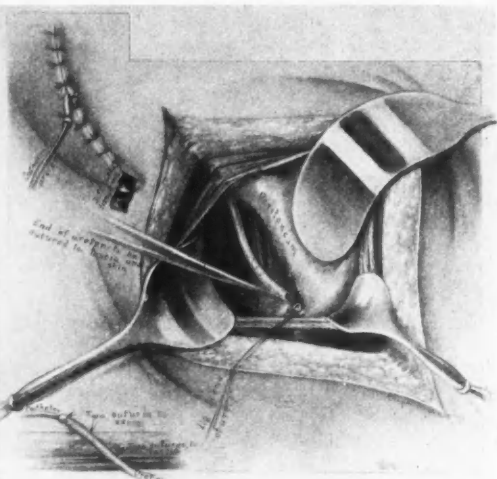


Fig. 2.—Resection and division of ureter close to bladder. The ureter is implanted into the skin in such a manner that it will make a downward curve at a radius leaving no kinks, thus assuring good drainage.

liver his masterful address on high diversion of the urine before the French Urological Association, in which he made an extensive review of the literature to date and proposed a simple, safe method of ureterostomy into the skin of the lower abdomen.

Having diverted the urinary stream successfully in six consecutive patients who presented hopeless bladder lesions, I herewith present my cases:

REPORT OF CASES

CASE 1.—Incurable advanced interstitial cystitis. Ureterostomy (left). Operative and clinical cure. Mrs. E. M., hospital number 15747, school teacher, age forty-three, entered Saint Mary's Hospital April 18, 1921, suffering from chronic interstitial cystitis accompanied by Hunner's ulcer, and right-sided hydronephrosis secondary to ptosis and kinking of the ureter. The ulcers were repeatedly fulgurated and the bladder dilated under gas and oxygen anesthesia with only temporary relief. In 1923 two linear ulcers in the fundus of the bladder were resected, which operation was followed by one year's relief from symptoms. Some thirty-seven fulgurations and dilations of the bladder under anesthesia were performed in all. During my sojourn in Europe in 1925 the patient received no medical aid, and on my return I found that the pathologic condition in the right kidney had entirely destroyed that organ, resulting in pyonephrosis. At this time the patient was extremely emaciated and literally living on a bedpan, suffering excruciating pain, was almost constantly under the influence of morphin, and was unable to carry on her occupation of school teacher. On April 12, 1926, right-sided nephrectomy was performed; and on May 7, 1926, in spite of sepsis and hastening anuria, the left ureter was transplanted into the skin of the left lower abdomen. The bladder atrophied and caused no further trouble. The patient now wears an apparatus which catches the urine as it drains out through the opening of the ureter into the skin. No retention catheter is worn. She has gained thirty pounds in weight and enjoys perfect health and has taken anew her useful occupation in the community, consisting of teaching mentally deficient children.

CASE 2.—Huge vesicovaginal fistula. Bilateral ureterostomy. Operative and clinical cure. Mrs. J. P., hospital number 46250, housewife, age fifty, entered Saint Mary's Hospital May 16, 1927, complaining of incontinence of urine, pain in the abdomen, and loss of weight. The patient had previously had a radical operation for carcinoma of the uterus. Following the operation she received considerable deep x-ray and radium therapy. Two years later she developed continual leakage of urine from a vesicovaginal fistula, accompanied by attacks of hematuria and of sharp pain in the right kidney. Cystoscopic examination revealed a large necrotic mass in the base of the bladder which had eroded the trigone, a portion of the neck and the anterior vaginal wall, forming a fistula whose diameter was approximately 1.5 centimeters. On June 3, 1928, bilateral ureterostomy was performed, the ureter being transplanted into the skin of the lower abdomen on both sides. Because of the severe infection of the kidneys, the pelvis were irrigated three times a week with mercurochrome 1:2000, alternating with rivanol 1:4000. The patient tolerated ureteral catheters, which were placed in a suitable apparatus which catches the urine as it drains away. On August 20, 1929, 35 per cent phthalein was collected from the right kidney and 20 per cent from the left in one-half hour after being injected intravenously. Previous to the operation nephrectomy was contemplated on the right side because of weakened function, but due to relief afforded by ureterostomy it had entirely returned. She regained her weight and strength and is now enjoying a comfortable existence two and one-half years after operation.

CASE 3.—Incurable advanced interstitial cystitis. Bilateral ureterostomy. Operative and clinical cure. Mrs. L. H., hospital number 56116, housewife, age fifty-six, entered Saint Mary's Hospital February 4, 1929, complaining of painful and frequent urination of fifteen years' duration. She had received considerable treatment, consisting of fulguration, dilatation of the bladder under anesthesia and radical resection of Hunner's ulcers, without relief. Examination revealed a bladder presenting the typical picture of interstitial cystitis with ulcer formation having a capacity of 70 cubic centimeters. On February 11, 1929, a bilateral ureterostomy into the skin of the lower abdomen was performed. A small abscess developed in the lower

portion of the right incision, eroding the lower portion of the ureter. Aside from an occasional attack of pyelonephritis, which is readily relieved by pelvic lavage and the administration of urinary antiseptics, the patient enjoys good health, has regained her strength and weight, and is able to perform her duties as housewife.

CASE 4.—Incurable vesical tuberculosis. Ureterostomy of double ureter. Operative and clinical cure. Mr. J. F., hospital number 50657, automobile mechanic, age thirty-seven, entered Saint Mary's Hospital March 14, 1928, with caseocavernous tuberculosis of the right kidney, with complete closure of the ureter on that side and advanced tuberculosis of the bladder with ulcer formation. A right-sided nephrectomy was performed on March 19, 1928, and the wound healed by primary intention. The bladder symptoms, however, persisted, consisting of frequent painful urination, incontinence, hematuria, and pain in the region of the bladder. On November 10, 1928, a granular mass was fulgurated in the bladder, liberating a large amount of pus from an abscess of the bladder wall. On March 7, 1929, the tuberculous cystitis resulted in further contraction of the bladder, involving the left ureter in the inflammatory process and causing definite constriction and obstruction. It was impossible to pass the finest filiform past this obstruction when efforts were made to relieve the patient from acute hydronephrosis on that side. On March 13, 1929, ureteral transplantation into the skin of the lower abdomen was made. Double ureters were encountered which measured, respectively, 4 millimeters and 1.2 centimeters in diameter. Both were found to be very narrow where they passed through the bladder wall, and 120 cubic centimeters of urine was collected from the mesial ureter and 30 cubic centimeters from the smaller lateral ureter which communicated with dilated calices in the pelvis. The patient made an uneventful recovery and is able to retain retention ureteral catheters in both ureters which drain into a suitable apparatus. He has returned to Italy to visit his relatives and is enjoying good health.

CASE 5.—Vesical carcinoma. Bilateral ureterostomy and cystectomy. Operative cure. Death nine months later from metastases. A number of years ago, with Dr. F. Hinman, I performed a bilateral ureterostomy at the San Francisco Hospital on a patient having an inoperable carcinoma of the bladder. The immediate result was good, inasmuch as intolerable incessant tenesmus and urinary back pressure and stasis was relieved. A cystectomy was performed later and although the patient died some nine months later from metastases he had been relatively free from pain during that time.

CASE 6.—Huge hydronephrosis secondary to incurable cystitis and ureteritis. Nephrostomy (first stage) clinical relief. Mrs. M. H., hospital number 40429, housewife, age sixty-three. On May 21, 1926, a right-sided ureterolithotomy was performed. On September 15, 1926, a left-sided ureteronephrectomy was made for pyonephrosis, ureteral stone, and ureteritis, with complete closure of the ureter. Following these operations she regained health and strength. Three years later she developed characteristic symptoms of advanced rebellious cystitis and hydronephrosis of the solitary kidney, and in spite of repeated dilatation of the bladder and ureter, under anesthesia, the bladder contracted to 30 cubic centimeters, constricting the lower portion of the right ureter. On June 3, 1929, a right-sided temporary nephrostomy was performed, as a preliminary step to ureterostomy. The patient received such benefit from nephrostomy that ureteral transplantation has been postponed to a later date.

INDICATIONS

Indications for ureteral transplantation are advanced interstitial cystitis, intractable bladder tuberculosis with contracture, extrophy, huge vesical fistulae and malignant growths of the bladder and uterus, involving the ureter.

In interstitial and tuberculous cystitis one should attempt to relieve the condition by all the modern methods of treatment at our command,



Fig. 3a (Case 2).—Bilateral ureteropyelogram made through ureterostomy opening. Horizontal position. Female, age 50, with huge vesicovaginal fistula.



Fig. 3b.—Dorsal position. The function of the right kidney has returned; from a trace of phthalein to 35 per cent in one-half hour (after urinary drainage was established by ureterostomy).



Fig. 4a (Case 4).—Bilateral plain roentgenogram. Male, age 37, with huge caseocavernous tuberculosis of right kidney. Nephrectomy (right), with persistent bladder symptoms.

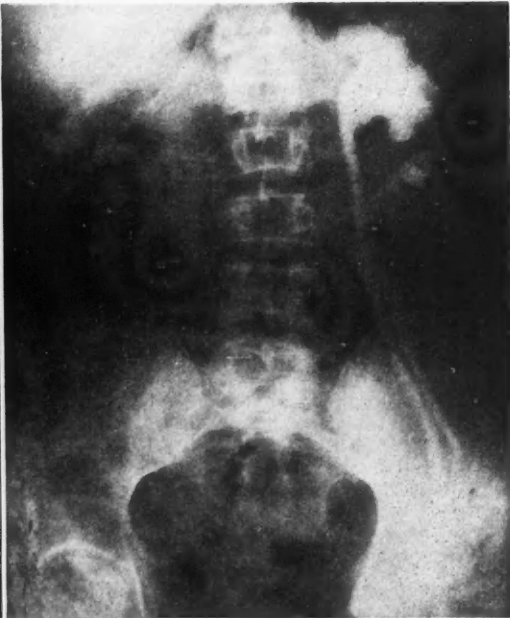


Fig. 4b.—Ureteropyelogram taken through ureterostomy opening, showing bifid pelvis. Note hydronephrosis of upper pelvis, and perfect drainage through both ureters after operation.

viz., dilatation of the bladder under anesthesia, light fulguration of the ulcers, irrigation of the bladder with antiseptic solutions, rest, regimen, and heliotherapy. In ulcers of the Hunner type, occasional relief is obtained by radical resection.

When these measures have failed and the bladder is contracted down so that it contains less than 50 cubic centimeters of urine, it may be assumed that the inflammatory processes involve and cause the intramural portion of the ureter to be constricted, resulting in back pressure, stasis, hydro-ureter, and hydronephrosis. With stasis comes infection and the patient rapidly goes downhill and dies, not from the original lesion in the bladder, but from urinary sepsis, stasis, and uremia. Diversion of the urinary stream relieves the back pressure and puts the bladder at rest; which usually atrophies and causes no further trouble (Willems,¹⁷ Legueu,¹⁸ Hinman¹⁹). In these cases one should not wait too long and one should intervene before the hydronephrosis has gone on beyond repair. This is well exemplified in the following case:

Mrs. S., age sixty, was referred by Dr. B. A. Mardis for urological investigation, because of repeated attacks of hematuria, urinary retention, frequency, painful urination, and pain in the region of the right kidney. She had had considerable treatment, consisting of renal lavage, removal of a urethral caruncle and dilatation of the bladder, with no relief. Examination revealed interstitial cystitis with a linear ulcer extending from one orifice to the other in the fundus of the bladder. In spite of repeated treatments, consisting of dilatation of the bladder and light fulguration of the ulcer under anesthesia, the bladder contracted to a capacity of 30 cubic centimeters. As the bladder contracted, symptoms of hydronephrosis developed in both kidneys. The kidneys became en-

larged to such an extent that they could be easily palpated. Ureteral transplantation was strongly advised but was refused by the patient. Ten days later this patient developed anuria, terrific pains in both flanks, chills, fever, and extreme prostration, and died in uremia. There is no question that if this patient had submitted to ureteral transplantation she would be living today and enjoying the health of the other patients reported in this series.

Malignant tumors of the bladder and uterus often involve one or both ureters, causing compression and strangulation. In these cases which are more or less advanced the patients are suffering from urinary back pressure, are cachetic and debilitated. Ureteral transplantation into the skin takes care of drainage of the urine and permits the surgeon to attack the growth by destructive doses of radium or deep x-ray therapy. When feasible the bladder can later be removed *in toto*. Transplantation into the sigmoid as perfected and performed by Coffey,²⁰ although it gives excellent results, still has a mortality, even in the most skilled hands, because the operation is too extensive and difficult in profoundly cachetic patients. In presenting ureteral transplantation as the "question mise à l'ordre du jour" before the French Urological Association in 1925, E. Papin¹⁶ reviewed all the cases of transplantation into the sigmoid performed up to and including 1925 and reported a mortality of 50 per cent. Chute²¹ reports an equally high mortality, and Hinman in discussing Dr. R. Coffey's paper on "Ureteral Transplantation," delivered before the 1928 meeting of the California Medical Association at Coronado, stated that his mortality was over 50 per cent. In large bladder fistulae where also there has been extensive destruction of the blad-

der and surrounding structures, ureteral transplantation is also indicated. In congenital malformations such as extrophy, one usually sees the patient early in life, when he is an excellent risk for the more radical operation of transplantation into the sigmoid. I feel that in these patients transplantation into the bowel is ideal, gives excellent results, and because of the resistance of the patients can be performed with very little mortality.

OPERATIVE TECHNIQUE

In order to perform this operation successfully one must exercise extreme gentleness in handling the ureter, in order to avoid necrosis. One should also implant the ureter in such a manner that it will make a gradual downward curve at a radius leaving no kinks, lessening the likelihood of stricture formation either of which would cause back pressure and result in hydronephrotic atrophy of the kidney, and favor ascending infection. The ideal area to transplant the ureter is in the skin of the iliac portion of the lower abdomen in a position midway between the inguinal and lateral positions see Fig. 6 (Case 2). This area, properly chosen, facilitates the patients' care of the fistulae, passage of ureteral catheters, and the placing and caring for the collecting apparatus. When both ureters are transplanted the incisions and points of exit of the ureter should be symmetrical. The abdominal muscles are incised and the ureter is identified where it is attached to the posterior peritoneum and crosses the iliac vessels. It is seized with very fine forceps and freed from the peritoneum by the aid of a groove director.

It is ligated as close to the bladder as possible and sutured to the fascia and skin in the central portion of the skin incision in such a manner that it will make a gradual downward curve, leaving no kinks or strictures in the ureter. The muscles and skin are then approximated in the usual manner, a soft rubber tissue drain being inserted in close proximity to the stump of the ureter near the bladder and brought out through the lower end of the incision. This drain is necessary to avoid the formation of a small hematoma which probably would become infected, resulting in an abscess that might erode the lower portion of the transplanted ureter. An 8 or 12 (Charrière) ureteral catheter is left in place in order to overcome anuria resulting from postoperative congestion and edema of the lower ureter.

In the most desperate cases presenting advanced back pressure in the kidneys, nephrostomy should be performed as a preparatory measure to subsequent ureteral transplantation. Temporary nephrostomy should be employed in preference to permanent nephrostomy since in the later operation the organ is more likely to become badly infected, developing areas of necrosis in the kidney substance which can be of considerable size. This procedure consists of placing a Malécot catheter into the lower major calyx. A curved hemostat is introduced through a pyelotomy incision and forced through the parenchyma of the kidney. The catheter is then grasped and placed into the most dependent portion of the pelvis by withdrawing the hemostat. It is brought out through the lumbar incision and left in place for



Fig. 5a (Case 3).—Bilateral ureteropyelogram of a female, age 56, suffering from incurable advanced interstitial cystitis. Note bilateral hydronephrosis, due to contracted bladder pressing on lower ureters.

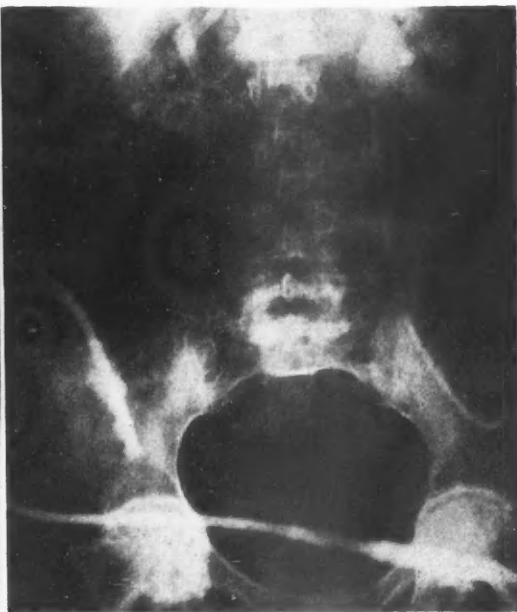
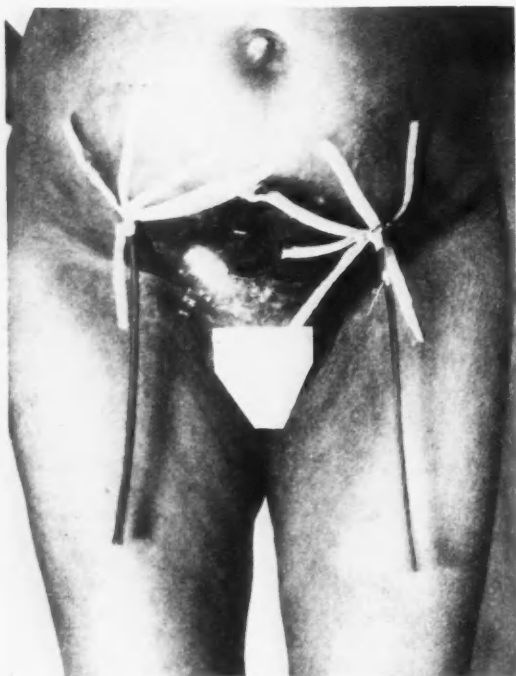


Fig. 5b.—Ureteropyelogram taken three months after ureterostomy. Note arrest of hydronephrosis of left kidney. Infection of lower portion of wound on right side has formed a small pocket which prevents the ascent of the large rubber catheter into the pelvis. (To be repaired surgically at a later date.) Complete clinical relief of symptoms.



Figs. 6 (Case 2).—Permanent ureteral catheters (No. 14, Charrière) fastened in place with adhesive strips. These are very well tolerated and are changed and cared for by the patient.



Fig. 7 (Case 2).—Apparatus in place in which the catheters drain. It functions perfectly, there being no leakage of urine. The patient is devoid of any foul odor and is able to do her housework.

two weeks during which time repeated lavages of the pelvis are made with antiseptic solutions. It relieves the pressure in the kidney and assures lumbar drainage of urine, allowing the lower ureter to heal. It reduces the possibility of obstruction and early ascending infection due to edema during the first days after the operation. One is greatly impressed by the relief afforded by the preliminary nephrostomy, which is as great and grateful as that afforded by cystotomy in a prostatic patient suffering from complete urinary retention and sepsis.

POSTOPERATIVE TREATMENT AND AFTER-CARE

At the time of operation, ureteral catheters are left in the ureter to assure urinary drainage during the first few days after the operation, that being the time when congestion and postoperative edema might occlude them. They should be changed every three days and the pelvis lavaged with antiseptic solutions daily. On about the seventh to the tenth postoperative day acute ascending pyelonephritis often takes place. It is usually ushered in by a chill, followed by fever, and accompanied by malaise, pain in the kidneys, and toxemia. It usually subsides but recurrent attacks may occur later, particularly when the drainage through the ureteral catheters is blocked. Some patients tolerate permanent ureteral retention catheters very well. The catheters are drained into an apparatus and are changed every three days. Other patients wear the apparatus without retention ureteral catheters, the urine draining directly into the apparatus. In the latter

group of patients one should progressively dilate the artificial meatus in the skin at least once a week in order to prevent stricture formation, which would favor ascending infection. The patient is instructed to sterilize, change and pass the ureteral catheters, perform renal lavage at stated intervals, and care for the apparatus.

ULTIMATE RESULTS

The immediate results of ureterostomy into the skin of the lower abdomen are excellent, inasmuch as stasis of the upper urinary track is relieved, permitting the repaired kidney to recover its functional power. One is surprised to note that the kidney above the transplant is damaged to a very slight degree indeed, presenting only the phenomena of slight back pressure with a mild degree of pyelonephritis and very slight alteration of the parenchyma. The patient regains his weight and strength and is converted from a hopeless bedridden invalid into an active citizen able to return to his particular walk in life. The ultimate results are equally as good, inasmuch as very little difficulty is encountered in educating the average individual to care for his catheters, apparatus, and to perform pelvic lavage. Furthermore, subsequent complications and renal diseases can be readily recognized, studied by the usual diagnostic methods in vogue, and cared for by the proper methods. All patients express profound appreciation for this beneficent operation which, as an act of mercy, has relieved the insupportable suffering and misery, and prolonged life.

CONCLUSIONS

1. Diversion of the urinary stream by transplantation of the ureters into the skin of the iliac region of the lower abdomen is indicated in extrophy of the bladder, extensive bladder fistulae, malignant growths of the bladder and uterus involving the ureters, and incurable interstitial and tuberculous cystitis, with or without ulcer formation.

2. Patients suffering from the above diseases often die, not from the original lesion in the bladder but from urinary stasis, due to the pathological processes compressing and constricting the ureters and then causing back pressure, sepsis, and uremia.

3. Six patients presenting hopeless, incurable bladder diseases are reported in whom extreme misery and untold suffering were successfully relieved by diversion of the urinary stream into the skin of the iliac region of the lower abdomen.

4. This method of transplantation of the ureters into the skin should be the operation of choice in cachetic and debilitated cases, because it is a simple, rapid, and benign operation devoid of shock, and is a surgical procedure which is well tolerated even by the most weakened patients. It has the advantage of enhancing the diagnosis and treatment of complications and of subsequent renal diseases by the modern methods of urologic investigation which are at our command.

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REFERENCES

- Simon, J.: Quoted by Albarrán.
- Hayes-Agnew: Quoted by Delagenière. *Chirurgie de l'uretère*. Archiv. Provinciale de Chir., 1897, iv, 337.
- Laurenze: Quoted by Papin.
- Le Dentu, A.: Affections des reins et des uretères. Paris, 1889, 803.
- Pozzi: Des blessures de l'uretère dans les laparotomies, *Semaine Méd.*, 1891, xi, 154.
- Albarrán, J.: Médecine opératoire des voies urinaires. Paris, 1909, 442.
- Giordano: In Boari. *Chirurgia del Uretere*. Roma, 1900, 558.
- Zuckerkandl: Operations quoted by Frank.
- Frank, K.: Über ureterotomie, *Deut. Zeit. f. Chir.*, 1912, cxiii, 427.
- Legueu, F., and Papin, E.: La dérivation des urines en amont de la vessie. Urétérostomie et néphrostomie bilatérales, *Archiv. Urol. Clin. Necker.*, 1921, iii, 1.
- Huc, E.: Des avantages de l'urétérostomie comme procédé d'exclusion de la vessie. Paris, *Méd.*, 1922, xlv, 338.
- Duvergey, J.: De l'urétérostomie iliaque bilatérale définitive, *Jour. Méd. de Bordeaux*, No. 20, October 10, 1923, 813.
- Day, R. V.: Ureteral transplantation, *Urol. and Cut. Review*, 1920, xxiv, 435.
- Rosenkranz, H. A.: Ureter transplantation into groin, *Urol. and Cut. Review*, 1920, 24, N. S. 8, 445.
- Ormond, J. K.: Diversion of the urine in intractable and incurable vesical tuberculosis, *J. of Urol.*, 1928, xix, 109.
- Papin, E.: La dérivation haute des urines. *Procès. Verbs., Mém. et Dis., de l'Assoc. Française d'Urol.*, 1925, xxv, 1.
- Willems, C. H.: De la dérivation urinaire ou exclusion vésicale dans la tuberculose de la vessie, *Archiv. Inter. de Chir.*, 1911, xxxvii, 592.
- Legueu, F.: De l'exclusion vésicale dans la tuberculose de la vessie, *Bull. et Mém. de la Soc. de Chir. de Paris*, 1910, xxxvi, 965.
- Hinman, F.: The surgical treatment of lower tract tuberculosis, genital and vesical, *Jour. of Urol.*, 1928, xx, 521. Idem: The indication of nephrostomy preliminary to ureterorectoneostomy, *Jour. A. M. A.*, 1926, lxxxvi, 921.
- Coffey, R. C.: Transplantation of the ureters into the large intestines, *Sur. Gynec. and Obs.*, 1928, xlvii, 593.
- Chute, A.: Ureteral transplantation in bladder carcinoma, *Jour. A. M. A.*, 1926, lxxxvii, 1613.

DISCUSSION

H. A. ROSENKRANZ, M. D. (1024 Story Building, Los Angeles).—I am glad that Doctor Mathé has stressed the lack of shock, since many of these patients come to us with but one kidney and that one badly diseased and with but very little function. For example: Mr. A. arrived on a stretcher from Arizona three years ago, after corresponding with me for several years concerning the operation. He had undergone nephrectomy for tuberculosis of one kidney. He had a well-advanced tuberculosis of the lungs, was bed-ridden, and so weak that he could utter only about three words without gasping for breath. Only a trace of pthalein appeared one hour after injection. I had turned him down for operation a year previous by letter, judging that he was too poor a risk, but his persistence overcame my decision. One thousand cubic centimeters of saline were administered intravenously during the operation, which I performed under spinal anesthesia without the slightest pain. In order to get a high anesthesia in these cases I use no other modification of my usual procedure than to inject the anesthetic with considerable force, the increased force carrying it higher. It took me twenty minutes to locate the ureter, which was not attached to the peritoneum but was cemented into a tuberculous spine. The patient experienced no shock whatsoever from the ureteral implantation into the groin, and three days later felt stronger and had a better appearance than when he arrived. I left to attend the Western Urological Convention in Vancouver, and the patient died about two weeks later, evidently from uremia. I believe that the kidney had been largely destroyed and probably consisted mainly of a mass of chronic tuberculous abscesses and cavities. I had decided to do a nephrostomy upon this patient instead so that abscesses, if found, might be opened and drained in order to relieve the patient of his toxemia, but an enthusiast on ureteral implantation talked me out of it on the night preceding operation. I quote this case to show how well the extreme case of pulmonary and solitary renal tuberculosis, almost moribund, stands this operation, and to stress the advisability of spinal anesthesia in such cases. The operation is simple and as a rule can be performed readily within thirty minutes.

The days of ether nephritis are not over. Another patient suffering from solitary renal tuberculosis begged me repeatedly not to give him a single whiff of ether. I cautioned the anesthetist, but after the operation he informed me that he had "found it necessary to give the patient but very little ether." The patient, a strong, relatively healthy, individual with excellent function in his remaining kidney succumbed to anuria about six days after operation—I believe to an ether anuria. Some form of gas or, in extreme cases, spinal anesthesia should be employed.

As Doctor Mathé has stated, the condition of many of these patients is most wretched. The morphin habit is the least of their troubles. After short-circuiting the bladder they not infrequently gain thirty to fifty pounds in weight and, because of sound sleep, their pulmonary, prostatic, and vesicular tuberculosis heals—has always healed in my posthospital cases—for we know that most patients with kidney tuberculosis will heal if given a chance, i. e., removing the stresses that are exhausting the patient, and urinating every ten to fifteen minutes day and night plus pain, are the outstandingly fatal stresses of renal and bladder tuberculosis. Suprapubic cystotomy re-

lieves these tuberculous bladders for a time only, for progressive contraction of this sensitive organ causes its walls to become painfully irritated by the retention catheter and the patient again begins to slip away rapidly. After ureter implantation some of my patients have pursued their previous vocations, such as ranching, carpentering, and attending school, over a period of from eight to eleven years.

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ROBERT V. DAY, M.D. (1930 Wilshire Boulevard, Los Angeles).—I wish to emphasize several points that Doctor Mathé brings out, basing my experience on ten cases:

1. That the operation is almost devoid of shock and therefore of danger to life.

2. That it practically never fails to give such results as he describes.

3. That the Coffey operation entails too much surgical procedure (with or without cystectomy) on a patient who has a degree of carcinoma which is obviously incurable.

4. In many cases where by reason of the obstruction in the lower ureters due to carcinomatous infiltration, with dilatation of the ureter and kidney pelvis and with damage to the kidneys themselves, infection with streptococci, staphylococci, Hager's *Bacillus* or *Bacillus alkaligenous fecalis* (or any combination of these), is quite likely to supervene. In such cases the urine becomes ammoniacal, and it is a well-known clinical fact that ammoniacal urine produces much chemical trauma of the mucosa and wall of the bladder—and even to the skin of the abdomen when such urine is allowed to run over it. Personal experience with the Coffey method in such cases has demonstrated to me that in these advanced cases (at least sometimes after bowel transplantation) a severe proctitis results.

Doctor Mathé has described a very excellent technique. Occasionally, however, I bring the ureter through a stab wound, always taking care not to suture the muscles and fascia too tightly around the ureter. One must never fail to drain the retroperitoneal space with rubber tissue, preferably of the Penrose type. Following the operation, I very much prefer a small Eynard whistle-tipped rubber urethral catheter to the ordinary ureteral catheter. Rubber is a better drain where it can be used. I have failed to note the postoperative infection of the kidney coming on a few days after the operation. This I believe can be avoided by using the rubber catheter.

I personally never do a preliminary nephrostomy for the reason that the ureterostomy does absolutely everything which can be accomplished by the nephrostomy and, further, because a nephrostomy entails a longer incision, more shock, loosening and delivery of the kidney out of its bed and unavoidable kidney trauma due to this loosening, delivery and handling of the kidney.

Like Doctor Mathé, we use catheters in the ureter or ureters until the rubber drains are removed and the wound is well healed, and in most cases continue to use them indefinitely. In the case of a middle-aged woman operated on in 1919 for a huge papillomatous cyst of the ovary in which the surgeon removed a section of the ureter (which was immediately followed by repair), I transplanted this ureter into the skin three weeks later and from that time (1919) until her death from carcinoma in 1927, she continuously wore a rubber catheter in her ureter, soon learning to care for it and change it herself. During the first year I was repeatedly asked to perform a nephrectomy on her; but because her other kidney had only a very low function while the ureterostomy side had a good function, I persistently refused to do the nephrectomy. After a year's time, however, she became used to the ureterostomy and was in good health until a year and a half before her death from carcinomatosis resulting from a late recurrence.

In another case with a diverticulum of the lower ureter and hard cicatricial stricture at the ureterovesical junction, in a patient from whom the other kidney had been removed, the patient returned from Mexico one year after I had performed the ureterostomy with seven stones in his ureter and kidney pelvis. These were extracted in my office with a long, curved Mayo ureteral stone forceps.

I am particularly delighted with Doctor Mathé's apparatus for collecting the urine without catheters. It is necessary in some cases to use some such apparatus instead of a catheter.

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DOCTOR MATHÉ (Closing).—In discussing this paper Doctors Rosenkranz and Day have emphasized the observation that has been voiced by practically every surgeon performing ureterostomy into the skin, namely, that it is devoid of shock and well tolerated by the most debilitated patient, and that it relieves inexpressible misery and suffering. Since the presentation of this paper I performed an ureterostomy with Dr. L. Player on another patient for incurable carcinoma of the bladder, ureter, and kidney. The patient arrived in the hospital in a moribund condition, greatly emaciated, uremic, constantly urinating, and suffering excruciating pain which was partially relieved by huge doses of morphin. His blood picture was bad, inasmuch as the red count was very low (erythrocytes, 3,400,000) and the white count high (leukocytes, 25,000). On March 10, 1930, we severed and resected a portion of the right ureter and performed ureterostomy into the skin on the left side. The operation was performed under spinal anesthesia. The following day the patient was entirely relieved from vesical tenesmus and severe pain and was able to sleep for the first time in three years. He has steadily improved and is now receiving the Coffey-Humber extract for cancer.

Five years ago I successfully implanted the ureter into the skin of a patient suffering from incurable tuberculosis of the bladder. The results were excellent, but inasmuch as the physician who referred him to me has since died, I lost trace of the patient and lack the clinical details to include his case in this paper.

In debilitated patients the intelligent employment of spinal anesthesia with all its improvements gives excellent results. Fifty per cent of the operations reported in this series were performed under spinal anesthesia, and at no time was there any suggestion of postoperative anuria. Like Doctor Day, I have also used small rubber catheters in place of the ordinary ureteral catheter composed of silk and gum, but as far as postoperative pyelitis was concerned it seemed to make very little difference whether the rubber or the silk catheter was employed. The pyelitis is probably due to a reaction of the kidney and ureter to the indwelling foreign body. When there is no hydro-ureter it is hard to secure rubber catheters of sufficiently small diameter to accommodate the ureter without causing pressure atrophy of its walls. When practical, one should employ the rubber catheter, as it can be readily sterilized by boiling and the patient has less trouble in its care.

With the patients who tolerate the indwelling ureteral catheter, I prefer to have them use the collecting apparatus which I have perfected. It collects urine which might come away between the wall of the ureter and the catheter. It allows for collection of urine over a period of hours without leaking, while the patient finds it adjustable and tolerable with ease. It is approximated to the skin by an inflatable rubber ring which acts as a seepage-tight cushion which rests against the skin without injuring or abrading it in the slightest manner. This approximation prevents leakage. The chance of ulceration and infection of the skin is reduced and the uriferous odor which is so objectionable to the patient is eliminated.

In certain cases preliminary nephrostomy relieves the back pressure and allows one to combat advanced

renal infection, assuring success for the ureterostomy operation to be performed later. It acts very much in the same manner as a cystostomy does in the two-stage prostatectomy. It should not be used in all patients, but in a carefully selected case it assures early drainage. If properly performed in the manner which I have described, little trauma, if any, is inflicted on the kidney.

There is no doubt that this beneficent operation has a place in relieving the suffering and misery accompanying incurable diseases of the bladder and uterus. Clinical observation and pathological study have demonstrated that it has no harmful effect on the kidney nor does it impair its secretory function. I recommend its earlier employment in indicated cases when there is a better chance of relieving suffering. Unquestionably, many lives could have been prolonged for months, if not for years, had this operation been properly performed before irreparable injury to the kidney had taken place.

SPASTIC CONTRACTION RING—A CAUSE OF POSTOPERATIVE INTESTINAL OBSTRUCTION*

REPORT OF CASE

By H. SPENCER HOYT, M. D.
Monterey

Discussion by John Homer Woolsey, M. D., San Francisco; Frederick H. Rodenbaugh, M. D., San Francisco; Walter C. Alvarez, M. D., Rochester, Minnesota.

WITH the development of abdominal surgery, the possibility of postoperative intestinal obstruction has become an ever-present hazard attending the efforts of the surgeon. In spite of much study and discussion, the cause of postoperative vomiting following operations upon the gastro-intestinal tract is often still obscure. There is a fairly well recognized group of patients in which the obstruction is due to a definite mechanical factor such as the pressure of a band, or the strangulation of a loop of bowel in an internal hernia. There is, in addition, the group of patients in which vomiting is only a transient reaction to the anesthetic, and quickly subsides. Between these two fairly well defined groups there are a number of patients in which the diagnosis is obscure, and it is often difficult to state whether we have a definite obstruction or not. In a certain number of patients in this latter group the factor producing the obstruction is a localized spastic ring in the bowel.

REPORT OF CASE

A male patient, age forty-two, was operated upon for obstructive duodenal ulcer, a posterior gastroenterostomy with catgut sutures only being performed under ether anesthesia. Persistent vomiting followed the operation and a duodenal tube was passed to the stomach and allowed to remain in situ. Forty-eight hours after the operation no fluid was leaving the stomach. The patient was taken to the operating room and the sutures clipped with a pair of scissors, allowing the wound to reopen to the peritoneum. No anesthetic, either general or local, and no preoperative hypodermic was given. After clipping the catgut uniting the peritoneum a quick stroke

or two of the finger separated the peritoneal edges. The patient was instructed to take some deep breaths, and the anastomosis presented in the upper part of the wound. Opposite the lower end of the suture line was seen a narrow white contraction ring in the jejunum, completely obstructing the bowel. The ring was approximately one-half a centimeter wide. As this white constricted ring in the bowel was watched, it was seen to relax for a fraction of a second at times and, as it relaxed, very superficial peristaltic rushes were seen to pass along the bowel in both directions, from the point of spasm. As the white ring relaxed, it became momentarily the normal pink color of the bowel, proving conclusively that it was a spastic ring and not a real constriction. The relaxation, however, was not of sufficient duration to permit the intestinal contents to go on. Infiltration of the abdominal wall with novocain was then carried out and the abdomen closed. The patient was put upon atropin for a few days and the stomach promptly began to empty, and he had no further trouble.

LITERATURE

A study of the literature bearing on this subject revealed a number of reports dealing with intestinal obstruction due to spastic rings. Engstad¹ in 1928 summarized the literature and reported six patients, observed during a surgical experience of thirty-five years. Three of these constrictions were stated to be in the jejunum, and in the other three the portion of the small intestine involved was not stated. In each instance, however, a firm white contraction ring was found as the cause of the obstruction. In one the ring relaxed after the bowel was lifted up into the wound, and in another the band relaxed its grip on the application of hot compresses. Both of these patients recovered. None, however, were obstructions following operations. Jirásek² in 1925 reported four cases, and Kœrte³ in 1924 reported several cases of obstruction after gastroenterostomy in which a spastic obstruction of the jejunum was found, a considerable portion of the jejunum being involved. He does not mention the anesthetic used. He treated all these con-

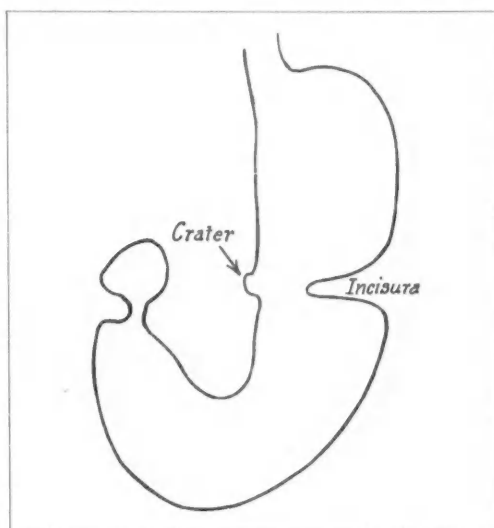


Fig. 1.—Schematic drawing showing typical incisure opposite gastric ulcer.

* Read before the General Surgery Section of the California Medical Association at the fifty-ninth annual session at Del Monte, April 28 to May 1, 1930.

ditions by making a new anastomosis, short-circuiting the spastic area. Van der Hoeven,⁴ Schloffer,⁵ Fromme,⁶ Riess, Hauer,⁷ and Florack⁸ have also reported cases.

THEORIES AS TO CAUSATION

Jirasek believes that degenerative lesions in the cells of Auerbach's plexus are one of the intramural causes of digestive tube spasms. Engstad,¹ however, from the observations made on his patients, concluded that the spasm was reflex, often originating in the reproductive organs. Alvarez⁹ says: "One function of the plexus is probably to keep the muscle from being too active or from contracting down into a hard knot. It is well known to experimental zoologists that when smooth muscle is cut off from its nervous connections, its tone is likely to rise to a point where rhythmic contractions are no more possible. The condition corresponds somewhat to that seen in the spastic paralyses of the voluntary muscles in man after cerebral hemorrhages. It may easily be that some of the contraction rings seen in spasmodic ileus are due, not to an excess of nervous stimulation, but to an absence of it."

It seems probable that the cause in some instances is reflex from distant organs and that in others it is due to local destruction or malfunctioning of the cells of Auerbach's plexus. The well-known spastic incisura frequently observed by the radiologists, opposite an ulcer on the lesser curvature of the stomach, may possibly be considered an example of this type of spasm. An interesting observation is that of Kirstein (quoted by Alvarez), who has shown that if the ileum be cut across and sewed up, food taken packed against the obstruction, but the dogs did not vomit and did not seem sick. If he pinched the bowel with an elastic ligature the food was held back far above the lesion and the dogs were very

sick. The more irritating the cause of the obstruction the more pronounced the symptoms of a reversal of the intestinal gradient were. It would seem, on theoretical grounds, that a spastic ring would therefore be productive of marked clinical symptoms, which is true of the cases reported.

COMMENT

There seems to be a wide variation in the spastic areas both as to the amount of bowel involved and the degree or persistence of the spasm. While most of the cases reported describe only a narrow white ring of spasm, in a few several inches of bowel were involved. In some patients the spasm was relaxed by merely lifting the loop of bowel out of the abdomen, or by the application of hot cloths. In others the administration of atropin was necessary. In still others the spasm was resistant to atropin, and in some even to ether anesthesia.

CLINICAL SIGNIFICANCE

From the frequency with which spasm is observed by the radiologists in portions of the intestinal tract subject to satisfactory x-ray examination, *i. e.*, the esophagus, stomach, colon, and possibly the duodenum, it would seem quite probable that the twenty or more feet of small intestine may be the seat of more spastic manifestations than we are at present able to demonstrate clinically. The observation here reported raises the question as to how frequently postoperative interference with gastro-intestinal motility is associated with localized spasm, particularly following operations in which the intestines are clamped or sutured, involving the possibility of trauma to the cells of Auerbach's plexus. The fact that many of these spastic rings are easily relaxed makes it particularly difficult for the surgeon to establish their presence with certainty.

The administration of morphin and atropin or of full doses of novocain would undoubtedly relax many of them. Probably very few would persist after ether anesthesia. The spastic incisura opposite gastric ulcer, so frequently seen by radiologists, is rarely observed by the surgeon, probably because of the spasm-relaxing effects of the medication or anesthetics used. If operation is performed for postoperative or other obstruction, and the real offender in the shape of a spastic ring is not detected, the surgeon is apt to blame the trouble on some band or adhesion or perhaps even to perform another anastomosis.

In opening the abdomen for obstruction, it is therefore of prime importance to avoid anti-spasmodic drugs or anesthetics.

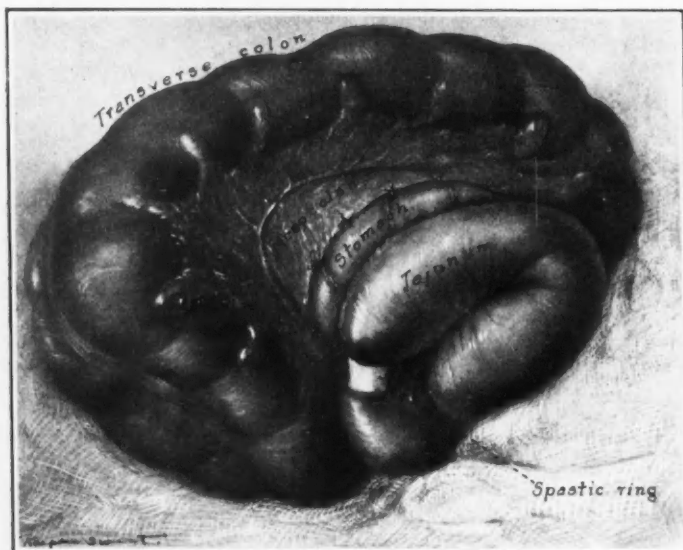


Fig. 2.—Spastic ring in jejunum following gastro-enterostomy.

If an operation has been recently performed, it will be possible in some instances to reopen the abdomen and see a few loops without any anesthetic. In many of these the obstructed loop will present in the wound. Where this is not possible, spinal anesthesia would seem to be the anesthetic of choice because of the ease of exploration which it gives. In case of a spastic ring due to the plexus being out of commission, we should, theoretically, expect no effect on the ring from spinal anesthesia. In case of a spasm due to distant reflex causes, spinal anesthesia might be expected to give relaxation.

CONCLUSION

Spastic contractions occur in the small intestine, both from reflex and direct causes, and are to be considered in case of acute obstruction. The effect of anesthetics and preoperative medication on the possibility of their detection is discussed.

REFERENCES

1. Engstad, J. E. J. A. M. A., June 23, 1928.
2. Jiråsek, A. Acta Chir. Scandania, 59, 91, 1925.
3. Kœrte, W. Mitt a. d. Grenzgeb. d. Med. U. Chir., 37, 211, 1923; abstract, J. A. M. A., 82, 1741, May 24, 1924.
4. Manion R. J. New York M. J., 98, 401, August 30, 1913; abstract, J. A. M. A., 61, 995, September 20, 1913.
4. Van der Hoeven, P. C. T. Zentralbl. f. Gynak, 36, 1529, November 16, 1912; abstract, J. A. M. A., 59, 2195, December 14, 1912.
5. Schloffer. Arch. f. klin. Chir. 1889.
6. Fromme. Med. Klin., 10, 500, 1914.
7. Hauer, A. Deutsche med. Wchnschr., 51, 1073, June 26, 1925.
8. Florack, W. Deutsche Zschr. f. Chir., 185, 289, May 1924.
9. Alvarez, W. C. Mechanics of the Digestive Tract. Hoeber.

DISCUSSION

JOHN HOMER WOOLSEY, M. D. (490 Post Street, San Francisco).—The occurrence of a spastic contraction ring, as observed by Doctor Hoyt, is of tremendous interest. It is a known fact that one may have spastic contractions of the sphincteric regions and also in the stomach from some local or referred irritation. That it has been seen to occur in the jejunum is, therefore, of additional interest. The cause of such a contraction band is not clear. The most plausible explanation today is that it is due primarily to an unusual stimulation or a lowered threshold of stimulation of the vagus. The short reflex through the intrinsic nerve plexi of Meissner and Auerbach alone may be the cause. One observes also a similar contraction band at times when the blood supply to an intestinal loop is temporarily injured—again being a reflex of the intrinsic nerve plexi. In any event, as demonstrated by Doctor Hoyt in instances of non-progression of the normal gastro-intestinal content, inhibitors of smooth muscle contraction, such as belladonna, atropin, or luminal, should be employed before resorting to further surgery.

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FREDERICK H. RODENBAUGH, M. D. (490 Post Street, San Francisco).—Spasms of the small intestine, as observed and described by Doctor Hoyt, are of theoretical and clinical interest to the roentgenologist as an explanation of some of the acute abdominal symptoms.

The roentgenologist observes spasms of varying intensities in other portions of the gastro-intestinal tract and has observed the type of spasm described by Doctor Hoyt in the stomach, esophagus, and colon; but spasms of the small intestine because of the acute onset have not been observed in routine studies.

Doctor Hoyt's observation is most interesting, and it is not improbable that spastic contractions of less intensity and duration than those which produce the acute obstructive symptoms might be the cause of some of our subacute abdominal symptoms of unknown etiology.

Doctor Hoyt's report has been most instructive and should stimulate interest in this condition which, theoretically at least, should not be infrequent and may be the cause of some of the unrecognized acute postoperative abdominal symptoms.

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WALTER C. ALVAREZ, M. D. (Mayo Clinic, Rochester, Minnesota).—This is an interesting case and well worth reporting. I have many reasons for suspecting that if the bowel had been opened in this person a patch of jejunitis or an actual ulcer would have been found in the neighborhood of the ring. In some persons the making of a gastro-enterostomy, with the pouring of acid gastric contents directly into the jejunum, causes considerable irritation of this part of the bowel. In a number of cases of gastrojejunal ulcer the history suggests strongly that the lesion formed before the patient left the hospital.

I know of a few cases in which a contracted ring similar in appearance to the one reported by Doctor Hoyt had to be excised before the patient could recover.

THE LURE OF MEDICAL HISTORY

CALIFORNIA'S FIRST MEDICAL HISTORIAN,
VICTOR JEAN FOURGEAUD, A.B., M.D.*

PART I

By J. MARION READ, M. D.
San Francisco

THE circumstances which sent a cultured gentleman and distinguished physician across the plains to California before the gold-rush days of '49 might make a tale. And in the case of Doctor Fourgeaud they do. That this pioneer doctor was also a profound student of medical history renders the story of his life peculiarly appropriate for this occasion, inasmuch as the Stanford chapter of Alpha Omega Alpha has dedicated itself to the study of California medical history.

Victor J. Fourgeaud was born in Charleston, South Carolina, obviously of French lineage. The events of his early life are known to us chiefly by inference. Even the date of his birth is disputed. The historian, Eldredge,¹ records it as April 8, 1817. William Heath Davis² asserts that it was February 1, 1816, which seems correct, as it tallies with the fifty-nine years graven on his tombstone as his age at death in 1875.

When about ten years old he was taken to France, where he received much of his preliminary education. He returned to his birthplace,

*Second annual address delivered before Stanford Chapter of Alpha Omega Alpha, May 17, 1930.

however, to study medicine, since it is recorded that the Medical College of South Carolina conferred upon him the M. D. degree in 1837, when he was twenty-one. Immediately thereafter the young medico departed for Paris, where he spent three years in further study. Eldredge says Fourgeaud was a graduate of the University of France, but it seems probable that his A. B. degree was attained at the French institution prior to taking up the study of medicine in this country.

His familiarity with the views of leading French physicians of his time, as shown in his original writings and notes upon translations, indicates that the three years in Paris were years of sincere postgraduate study.

A further reason for believing that his Paris days were spent in the clinic, hospital, and medical library, rather than in those pleasure palaces which visiting Americans in their early twenties are apt to frequent, is that during this period he began an extensive research into medical history. How or why this very young doctor took such a keen interest in the story of medicine, we do not know.

We do know, however, that the interest was deep and genuine, for the studies begun in Paris as a youth were continued under the vicissitudes of practice in various places, and culminated after a quarter of a century in a work which he probably regarded as his magnum opus.

But Doctor Fourgeaud's fame rests not alone on his recording of what others accomplished. By virtue of his thorough knowledge of medicine and by displaying the courage of his convictions he inscribed his own name in the medical history of America.

Our hero, like many of us, presented a strange combination of mental traits. His chief interest, mayhap his hobby, was the history of his profession and in this respect he looked backward upon Time, yet, Janus-like, he also looked ahead—far beyond present attainments toward the future. This we are led to conjecture from the conduct of his life.

For example, when the time came to practice his art he did not remain in France but returned to the United States. Nor did he tarry in his native state or anywhere on the Atlantic seaboard but turned westward and took up his abode in St. Louis.

St. Louis, then with about fifteen thousand inhabitants, was the frontier city of the country. Its location on the western edge of civilization and a large French-speaking population were probably the influences which led Fourgeaud to locate there for the practice of his profession.

How the young doctor of twenty-four obtained a foothold in this frontier city we can readily imagine. He seems to have possessed a pleasing personality, better than the average medical education, and the ability to speak French as fluently as English.

We know that he achieved a considerable degree of success in the practice of medicine dur-

ing his seven years' residence in St. Louis, and that his fellow practitioners there came to respect him, as others did later in California.

Somewhen during this period he took unto himself a wife and to the couple, while still living in St. Louis, was born a son.

When Doctor Fourgeaud had been practicing about three years the first issue of the *St. Louis Medical and Surgical Journal* made its appearance, bearing the date of April 15, 1843, and under the editorship of M. L. Linton, professor of medicine in the St. Louis University. The second article³ in this initial issue was a translation by Fourgeaud from the French of an essay upon "Auscultation During Pregnancy." In a footnote the translator gives a critical review of the opinions then held concerning how the two heart sounds are produced. This point in cardiac physiology continued to excite Fourgeaud's curiosity for some years, as we shall see later.

The natural desire of every Boswell to paint his Johnson in the most heroic stature has led one of Fourgeaud's biographers to credit him with founding and editing the *St. Louis Medical Journal*. This half-truth has been propagated by others,⁴ myself included,⁵ and so in justice to the whole truth I record that Doctor Fourgeaud was a co-editor with Doctors Linton and McPheeters for twenty months prior to his departure from St. Louis.

With a medical education, exceptional for the times, combined with a flair for writing, it was to be expected that his literary ability would make itself known in time. In the issue of August 1845 appears the announcement, "Our readers will perceive that Dr. V. J. Fourgeaud, our esteemed correspondent and efficient collaborator, is associated with us as co-editor."⁶ On the title page the new editor is described as one of the physicians of the St. Louis Hospital, etc.

Undoubtedly Doctor Fourgeaud had made rapid progress in his climb up the ladder of success. And the reason is not difficult to find, if we may judge his professional ability by the quality of his writings.

Two of his undertakings are particularly worthy of mention. In March 1844 he published the first article of a series based upon annual analysis of the mortality statistics of St. Louis. The title was "Mortality Among Children in St. Louis,"⁷ and his chief concern was the heavy death rate among small children from cholera infantum. It was a most ambitious undertaking, as well as a worthy and necessary one, for, as the author says, his city had hitherto neglected publication of its mortality figures, thus lagging behind other cities.

An excerpt from the introduction follows:

"Our mind was directed to this subject by the alarming mortality which prevailed among the children of this place during the past summer, especially during the months of July and August. It is indispensable for us to obtain accurate information respecting this mortality. We must learn the number of victims, and the maladies of which they died. The causes,

also, shall be inquired into; for every conscientious and philanthropic physician feels himself bound, not only to relieve the sufferings of his fellow citizens, but also to discover their causes and remove them if it be in his power."

His expressed viewpoint reveals an advanced conception of the epidemiological nature of the problem and also of the proper manner in which it should be attacked.

Reviewers for the *American Journal of the Medical Sciences* took cognizance of these articles and published complete abstracts of them upon two occasions. One comments: "In demonstrating the extent of a great source of suffering and mortality among his fellow citizens, Doctor Fourgeaud has displayed both intelligence and zeal in the cause of humanity."⁸

One is impressed at almost every turn by the soundness of Doctor Fourgeaud's views. To a mind of more than average native ability had been added a most excellent medical training in an atmosphere of refinement and culture. It is quite likely that Victor Fourgeaud was the best prepared and most cultured physician practicing in that frontier city during the 1840's, a period prior to medical licensure and when the layman made no distinction between graduate physicians and those who undertook the practice of medicine after a two years' apprenticeship to a physician preceptor.

The mark of true culture is discernible in Doctor Fourgeaud's broadmindedness and liberality of viewpoint. But this was to be expected of one who had delved as deeply as he into the history of his profession. Just what experiences or trend of thought prompted him we do not know, but during his St. Louis sojourn he drew upon his historical notes for a series of papers under the title of "Eclecticism in Medicine."⁹

He wrote, "Each day witnesses the birth and death of systems, and a cursory glance into the history of medicine will suffice to convince us of their absolute insufficiency."

He proclaims general acceptance of the experimental method of Bacon as applied to the investigation of the nature and treatment of disease and makes a plea for empiricism.

"Was it reason that discovered the efficacy of peruvian bark in intermittent fevers; of mercury in syphilis; of iodine in goiter, etc., etc.? . . . Our inability to explain the *modus operandi* of medicaments is no sufficient reason for their rejection when their efficacy is incontestable. . . . We are at a loss in numberless cases for correct pathological or physiological notions. What do we know of intermittent fevers? Has the secret of their periodicity as yet been explained?"

It is the mark of an intelligent and educated physician to know the limits of knowledge pertaining to his profession. The therapeutic triumph of quinin over malaria did not mislead Doctor Fourgeaud into satisfied belief that his profession required to know nothing more about the disease.

On December 23, 1845, this rising French physician, then twenty-nine years old, delivered "An Introductory Lecture on the History of Medi-

cine" before the Medico-Chirurgical Society of St. Louis. He concluded:

" . . . I have given you a rapid and imperfect sketch of the past history of the science to which you have devoted yourselves.

"Its future greatness, who can predict? What a splendid vista opens before us.

"You, gentlemen, are in part the depositories of its testing. Be faithful to your trust. Press onward, with an eye fixed unflinchingly on truth, like the eagles on the sun. Steer clear of the shoals and quicksands on which so many have been wrecked. Trust not yourselves to imagination in a science involving such high and holy responsibilities as the health, happiness, and life of our fellow men. Devote yourselves with untiring vigilance to the observation of facts. Be not dismayed by difficulties, but like true sons of the gallant west, rouse all your energies into action and overcome them."¹⁰

As we look back over his life and peruse his writings can we doubt the high ideals and honest intent of this man, or his ability and desire to render competent and conscientious service to his patients? Yet they were doubted. Nay, more, he was hailed before a tribunal in a malpractice suit.

There is something about such suits which sets them apart from all other civil suits. Behind each suit usually sits the grinning god of Malice or his grasping brother Avarice. Even when the defendant wins he has lost that which every physician prizes above all—an unsullied reputation for integrity and ability.

It is inconceivable that a malpractice suit would ever be brought in a community made up entirely of cultured persons such as was Victor Fourgeaud, for example. But St. Louis in 1846 was not such a community, nor is it likely that such ever existed or exists today.

One can easily imagine how this suit shook the equanimity of this refined and highly lettered young physician. To a man who had dedicated himself to the best in medicine, who had labored long over the mortality figures to ascertain why so many infants died in St. Louis, who had pleaded in print for the erection of a children's hospital—to such a man a malpractice suit was a calamity, a blasting of his fondest hopes and aspirations.

Now there are those thick-skinned sons of Mammon who occasionally enter medicine with the mistaken idea that it is a highly remunerative calling. To them a malpractice suit is all in the day's work and perhaps something to be capitalized.

But Victor Fourgeaud was not of this stripe. His gentility, however, did not require him to take this blow without retaliation, and his retort was made in a characteristic manner.

"Medical Responsibility—The Public and the Physician"¹¹ was the title of his published thoughts upon malpractice suits.

"Nothing is more calculated to impede the progress of our science than the custom, now becoming so prevalent of suing for alleged malpractice. It is of no unfrequent occurrence in our day and country to see an honorable and skillful physician dragged before the public, summoned before a court of justice—and for what? To answer for some supposed or

actual error of judgement to which as fallible man he was liable; and before what tribunal is his cause to be adjudicated? judge, learned in the law, perhaps; jurors, high-minded and conscientious men, we don't doubt, and qualified to decide all other cases that may be laid before them, but wholly ignorant of everything appertaining to our science. Can such men be deemed competent judges in questions entirely medical in their character? Undoubtedly not."

In his article Doctor Fourgeaud pointed out the long preparation demanded in France of those who would practice medicine, the rigid tests to be passed before certification, and also the guarantees and protection given the medical profession in a highly civilized country.

Disillusioned, disappointed, and deeply perturbed by the malpractice suit, our enthusiastic young physician decided to leave St. Louis. In fact we might expect that he would return to France, to an environment in which, by breeding and education, he was at home.

But we have yet more to learn about Victor Fourgeaud. Though his culture was more than a veneer and the hold of organized society upon him was a strong one, yet it could not turn his steps eastward.

The primitive man in him; the call of adventure; the desire to pioneer, to see new worlds—these turned him westward. The newest part of the new world rather than the effete old world beckoned to him. It fascinated him now just as St. Louis had appealed to him seven years before.

What had he accomplished in those seven years in the frontier city which had more than doubled its fifteen thousand inhabitants in the period? He had climbed to the top in his profession and had evidently attained financial success sufficient to invite a malpractice suit.

But a man's peers and contemporaries know best his true worth, so I quote Doctor Linton¹² in an editorial note entitled simply:

"Dr. Fourgeaud

The connection of our esteemed co-editor with the *St. Louis Medical and Surgical Journal* has ceased. We doubt not that our readers will regret this. Why Doctor Fourgeaud should leave St. Louis for the shores of the far-off Pacific we acknowledge that we can see no good reason; that is, we can see no good reason why a physician in a good lucrative practice—surrounded by numerous friends—in the enjoyment of all that wealth can afford in a large, rapidly advancing and flourishing city, blest with all the faculties and endowments physical, moral, and intellectual for acting a glorious part on such a theatre should voluntarily turn aside from all those things to take up his abode in California. To the burning spirit of adventure, which is nowhere so powerfully in operation as in this country—that spirit which beckons with wizzard charms to unexplored valleys, undescribed climes, and untrodden coasts, to the mysterious yet potent operations of this spirit only, can we attribute the apparent heroism of such conduct. If our influence could have counteracted such an influence, the profession of St. Louis would not have lost one of its most brilliant ornaments; as it is, all that we can do is to utter a heartfelt wish that our noble-hearted and enthusiastic friend, as he follows westward the bright star of empire, may realize all the enchanting visions of his imaginings—find an eutopia equal to his fondest hopes.—L."

And so one day in April, with his wife, little son, and his brother, he turned his back on St. Louis and headed out across the prairie. It is recorded⁴ that at the first sunset they camped under some oaks twenty miles out from the city. But for the remainder of the six months' trek to California we can follow them only in fancy.

Here was fortitude. The trail of '49 to California was not yet blazed. What could such a small party do if attacked by Indians? What did this Paris-raised gentleman and his brother know about firearms, buffalo, prairie fires, packing, camping, and woodsmanship in general?

Perhaps the news of the tragic fate which befell the Donner Party the winter before had not yet filtered back to St. Louis. Would it have made any difference to the doctor? I doubt it.

REFERENCES

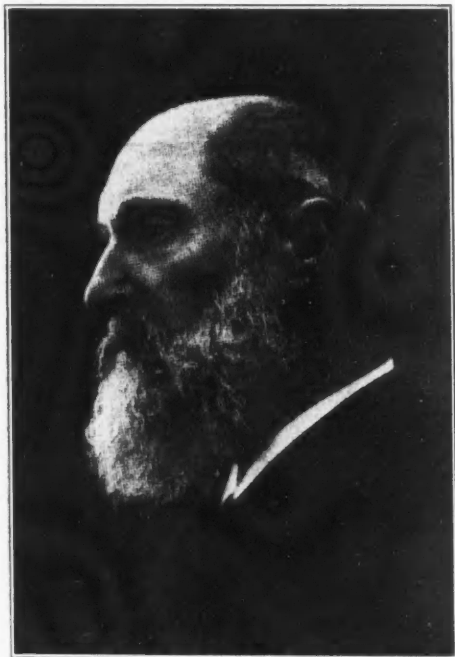
1. Eldredge, Z. S. The Beginnings of San Francisco, Vol. ii, p. 588, 1912.
2. Davis, William Heath. Victor Fourgeaud, unpublished biographical sketch in possession of Dr. George D. Lyman.
3. Fourgeaud, V. J. *St. Louis Med. and Surg. Jour.*, Vol. i, p. 10, April 1843.
4. Lyman, George D. The Scalpel Under Three Flags in California. *Quarterly of the California Historical Society*, p. 34, June 1925.
5. Read, J. Marion. A History of the California Academy of Medicine, San Francisco, p. 21, 1930.
6. *St. Louis Med. and Surg. Jour.*, Vol. iii, p. 113, June 1846.
7. Fourgeaud, V. J. Mortality Among Children in St. Louis. *St. Louis Med. and Surg. Jour.*, Vol. i, p. 181, March 1844.
8. Domestic Summary. *Am. J. M. Sc.*, Vol. xxxv, p. 253, January 1845; Vol. xxxix, p. 256, January 1847.
9. Fourgeaud, V. J. Eclecticism in Medicine. *St. Louis Med. and Surg. Jour.*, Vol. iii, p. 97, August 1846.
10. Fourgeaud, V. J. An Introductory Lecture on the History of Medicine. *St. Louis Med. and Surg. Jour.*, Vol. iv, p. 481, April 1847.
11. Fourgeaud, V. J. Medical Responsibility—The Public and the Physician. *St. Louis Med. and Surg. Jour.*, Vol. iv, p. 289, December 1846.
12. Editorial, *St. Louis Med. and Surg. Jour.*, Vol. iv, April 1847.

MASTERS IN MEDICINE

A TRIBUTE TO THE LATE ERNST FUCHS

Among outstanding figures in medicine few have loomed larger through their work than Professor Ernst Fuchs of Vienna, whose monumental studies in ophthalmology for many years made him the recognized dean of that specialty. His death took place in Vienna on November 21, 1930.

The *Wiener Klinische Wochenschrift* of December 4, 1930, printed a tribute from Professor Josef Meller of the I. Eye Clinic, University of Vienna, himself a celebrated assistant and associate of Fuchs in former days, and well known to a host of leading American ophthalmologists whom he has taught. Excerpts from the tribute by Meller are worthy of perusal, not only because of the deserved praise given to one of the world's great masters in medicine, but also because of the emphasis placed upon the true character of scientific labor. On that account some portions of his tribute to his former chief are here printed.—(Translations by the courtesy of S. L. Millard Rosenberg, Ph. D.):



Ernst Fuchs

Multis ille bonis flebilis accidit

Now Ernst Fuchs is gone, too, into the realm of the shades and into Pluto's home, he who seemed indestructible, who was for us the very symbol of perseverance, the strong pillar of our science on which we climbed upward and which was our very prop and support. . . .

Although kindly Fate had spared him for so long a time, his demise came all too soon, for us his pupils, for our higher institutions, and for our fatherland. For he labored for all of us to his very last days. He was our pride, our joy. With his renown he carried a vision of Austrian science to the farthest corners of the earth, and the honors accorded him everywhere reflected creditably on our land. Love, worship, and admiration were bestowed on him by the world entire, by the far West as well as by the Land of the Rising Sun. He realized the good fortune of seeing the fruits of his indefatigable labors ripening and being harvested. . . .

Ernst Fuchs was a serious man. His life was labor, incessant labor. And to that he trained his fellow workers, his assistants. Service at the Fuchs Clinic was hard. The greatest diligence alone could keep step with the director of the clinic. Performance of duty, absolute unremitting performance of duty, was to him a matter of course. There was no praise. And so he seemed cold. But he was that by no means. For he had a warm, responsive heart. He helped everyone in his surroundings, aided and promoted all, and he led his assistants to the very heights of science. Thus it was that all those, of his spirit, who strove with him toward a perception of truth, loved and esteemed him dearly, intensely. His patients, too, promptly recognized the value of this physician, and thus his clinic soon became the rendezvous of the afflicted the world over. Without discrimination whatever he had was at their disposal, attending to each with the same care and devotion. In no other clinic the world over could one observe within a few weeks so many and such rare cases as in that of Fuchs. It was a joy to have had the privilege of being assistant there. Nowhere else was it possible to obtain so great a clinical knowledge.

Ernst Fuchs was possessed of a very great general medical knowledge, and to the very last he was in the habit of following attentively the medical sessions and especially those of the *Gesellschaft der Aerzte*. With every new achievement in the realm of medicine he was ever familiar and therefore, despite his advanced age, his viewpoint was never antiquated. . . .

Ernst Fuchs was simple and modest in his whole conduct of life; he preserved at all times his mental equanimity, even in misfortune, from which he was not spared either and which he bore with stoic calm.

Now after almost eighty years of mortal pilgrimage he has gone to rest. In the beautiful cemetery of Kitzendorf, high above the shores of the Danube over which a glance from his blue eyes would so often meditatively rove, he sleeps his eternal sleep. Our intensest gratitude for all we have received through him accompanied him on his last voyage. His memory will never grow dim, for his name has long loomed large in the history of ophthalmic science.

CLINICAL NOTES AND CASE REPORTS

TRAUMATIC MYOSITIS

REPORT OF CASES

By F. F. GUNDRUM, M. D.
Sacramento

THE American flair for speed and for machinery has resulted, among other things, in the marketing of mechanical massage machines, extensively advertised in journals, for the ladies. These machines consist fundamentally of a canvas belt attached to an eccentric. In operation this gives a series of rapid, short, and powerful jerks to the belt held taut against the part of the body being treated, thus achieving a great deal of massage in a very short time. That this rapid method of massage might possibly be detrimental does not appear in the advertisements and, so far as I know, has not received any great amount of attention. On this account the following cases may be worth reporting.

REPORT OF CASES

CASE 1.—Mr. G., age forty-eight years, very successful and energetic business man, purchased a machine (\$125) for "family and personal use." Some three or four months later (September 1929), without any apparent immediate cause, he came down with a very severe and disabling pain in the right thigh, without fever, local redness, or leukocytosis. X-ray of the thigh showed in the adductor muscles, about five centimeters mesial to the midpoint of the femur, a calcified spicule five centimeters long and five-tenths centimeter wide. Under rest and hot compresses the pain disappeared in about four or five days. In discussing the probable etiology with this very intelligent gentleman, he finally said, "I think this all came from that — machine. I have been putting in some extra time upon my thighs lately and have taken two treatments a day."

CASE 2.—Mrs. G., wife of the preceding, whose embonpoint has a tendency to settle in the gluteal region, has been using the same machine, with especial attention to this area. About January 1930 she became very lame with pain about the great trochanter on the right side and was compelled to go to bed; no fever, no leukocytosis, no redness. X-ray of the hip showed, in the abductor muscle, just above the greater trochanter, a calcified spicule about three centimeters long and four millimeters wide. She recovered in a few days with compresses and rest, but the "health-building machine" is enjoying a vacation.

1127 Eleventh Street.

ERYTHEMA INDURATUM*

REPORT OF CASE

By ERNEST K. STRATTON, M. D.
San Francisco

THE following is the report of a case of erythema induratum, the patient at the same time having complications as follows: chronic pneumonia, tuberculous nodules of the conjunctivae, and squamous cell epithelioma of the skin.

* Read before the Dermatology and Syphilology Section of the California Medical Association at the fifty-ninth annual session at Del Monte, April 28 to May 1, 1930.



Fig. 1.—Showing lesions of erythema induratum. Circular hole of left leg is from biopsy punch.



Fig. 2.—Showing lesion in left knee area.

REPORT OF CASE

Mrs. I. K., age forty-eight, was referred to me by Dr. Philip Pierson in August 1929.

Lesions.—She presented the following skin lesions:

First: Purplish-red nodules over the lower third of both legs, both anteriorly and posteriorly (Fig. 1). They had been present several weeks. The patient gave a history of having had a similar eruption in 1925, which lasted several months. Some were hard and some were soft to the touch, and others were broken down and exuding pus. Many depressed and pigmented scars were also present. This picture suggested the diagnosis of erythema induratum, as did also the biopsy (Fig. 3), which showed a tubercloid arrangement in the hypoderm.

Second: An infiltrated granulomatous type of lesion, approximately three by four inches in size, irregular in outline, grayish red in color, situated on the mesial aspect of the left knee. Studded here and there over the area were many small superficial ulcers, especially at its borders (Fig. 2). On the whole, its appearance suggested a diagnosis of tuberculosis cutis, which diagnosis was tentatively made until the microscopical section was studied. To my surprise, the section showed it to be a prickle-celled epithelioma (Fig. 4).

Its history was that it had been present since 1923, had gotten a little larger during the intervening years, causing some discomfort owing to a sticky discharge which appeared off and on, and that during the six months prior to her first visit she noticed that it was enlarging rapidly.

Third: The left eye presented one pea-sized yellowish, elevated, hard nodule, and two match-head-sized nodules of the same type on the conjunctiva, just below to the right and just below to the left of the cornea, respectively, which had been present for about ten days. Doctor Barkan diagnosed them as tuberculous, and was of the opinion that they were due to tubercle bacilli which had come via the blood stream, rather than by the usual method of extension, that is, from

underlying or adjacent tuberculous structures; much in the same way as we account for scrofuloderma which we sometimes see associated with an underlying tuberculous gland or bone. He also stated that while the patient showed evidences of a healed tuberculosis in other eye structures, that there was no tuberculous activity in them at the present time. Doctor Ophüls reported that these sections showed a congested conjunctiva and a large tubercle with caseous center surrounded by a thick layer of epithelioid cells, no giant cells.

History.—The patient's relevant history was as follows:

She had measles and whooping cough at the age of eight, followed by ulcers on cornea, which reduced her vision considerably. The eye condition lasted until she was eighteen years of age. At twenty-three she developed an ischiofemoral abscess, followed by a fistula which was removed four years ago by surgery. At twenty-seven she developed a hacking cough with slight expectoration which was blood-streaked, and in February and again in March of this year she had a severe hemoptysis lasting for one week. Her appetite is good, she has no digestive disturbances, and has had no night sweats and no loss of weight.

Her physical examination showed a well developed and normal appearing woman, moderately obese. Her weight has been constantly around 153 pounds and her blood pressure 165/110.

General Physical Condition.—Doctor Pierson's report was as follows:

The lungs showed dullness and slightly diminished breath sounds at the left base. There were harsh breath sounds over the upper lobes and there were many subcrepitant râles with cough. A few fine crepitant râles were heard at the right apex.

The x-rays showed a thickened pleura at the right apex with a few apical scars. In the left apex small apical scars were noted. Radiating out from the left lower hilus was an infiltration involving the left lower lobe, as well as a thickened pleura on the left side.

The sputum was negative for tubercle bacilli.

For diagnostic purposes, Doctor Pierson gave her one-fiftieth milligram of Koch's old tuberculin intracutaneously. This caused a reaction approximately



Fig. 3.—Microphotograph (low power). Erythema induratum lesion showing the pathology adjacent to the fat cells.



Fig. 4.—Microphotograph (low power). From knee lesion showing a squamous-cell epithelioma.

two and one-half centimeters in diameter with a central raised area one centimeter in size.

Treatment.—For therapeutic purposes the patient was given gradually increased doses of a French tuberculin preparation with remarkable success. The nodules on the conjunctiva disappeared rapidly and the activity in the erythema induratum lesions has practically subsided.

The lesion on her knee was destroyed under local anesthesia by means of electrocoagulation and, immediately following the operation, the base was treated with a massive dose of unfiltered x-ray.

Due to three factors, the wound was slow in healing. First, because there remained considerable tissue, destroyed by coagulation but left to slough of its own accord because of its involved location. Second, because of the large dose of x-ray from which there was a painful reaction lasting nearly three weeks. And third, because of the location of the lesion which was such that when the leg was flexed in walking, the granulation tissue and the new epithelial tissue were disturbed. This last made it necessary to immobilize the part. The wound finally healed after two months, and there is a firm contracted scar now in this location.

COMMENT

Two aspects of the case aroused my particular interest. First, while it is a more or less accepted theory that the lesions of erythema induratum are the result of tissue reactions to the tubercle bacilli *in situ* the organisms are difficult to demonstrate and animal inoculations are many times unsuccessful. In this case, however, we see another structure, namely, the eye, showing tuberculous nodules which were diagnosed as embolic in type.

Second: The microscopical finding of a prickle-celled epithelioma in a lesion where the clinical diagnosis was more suggestive of a tuberculosis cutis. Although I have many times observed an epithelioma developing on a tuberculous lesion, its diagnosis has always been quite evident. In this case, however, there remains the question; was this lesion an epithelioma from its inception, or was it a tuberculous lesion which had undergone degeneration?

490 Post Street.

UNIVERSITY OF CALIFORNIA—MEDICAL DIVISION CASES PRESENTED AT THE STAFF CONFERENCES

CASES OF ACUTE ANTERIOR POLIOMYELITIS

CASE 1.—S. A., single, American, male, aet. 18, entered University of California Hospital private medical service on August 19, 1930.

Chief Complaints.—Frontal headache and stiff neck for three days. Paralysis of arms and legs for one day.

Present Illness.—Patient was well up to onset of present illness. On Sunday morning, August 17, 1930, two days prior to entry, he had been working on an automobile. That evening he had a severe frontal headache and said his neck was stiff. His mother gave him aspirin, without relief, put him to bed, and called a physician who gave him a laxative, since his bowels had not moved for two days. Later the same evening his knees began to ache, giving him the feeling that he had walked for miles. He was very restless and talked in his sleep all that night. There was no increased mental irritability. The next morning he felt a great deal better, his headache was less severe, but his knees still ached. He was able to walk around. The next morning, Tuesday, he was unable

to hold a glass of orange juice which his mother brought him. He said he was weak and tired all over. He wanted to go to the bathroom about 9 a. m., but was too weak to walk and his parents helped him. They left him there for a short time, during which he was unable to urinate. He was helped back to bed by his parents, who thought he was quite helpless; he was unable to support himself or to use his arms satisfactorily. The same physician came again at 11 a. m. and found him able to use his arms fairly well. That evening he became very weak, could not turn in bed, and was admitted to the University of California Hospital.

Previous History and Family History.—Unimportant.

Physical Examination.—Night of entry: Flaccid paralysis of both arms and legs. Neck rigidity. Absent knee-jerks. No Babinski or clonus. Acute urinary retention relieved by withdrawal of 800 cubic centimeters of urine per catheter. Lumbar puncture done—pressure, 30 centimeters of water. Fluid clear. Cell count 225 lymphocytes per cubic millimeter. Twenty-five cubic centimeters of convalescent "polio" serum given into muscles of each buttock.

Laboratory.—Urine: 1.025; cloudy, neutral; albumin and glucose, negative; occasional white blood cells and casts. Spinal fluid: Wassermann, negative; colloidal gold, 0012221000; protein, plus; globulin, plus. Blood: hemoglobin, 95 per cent; red blood cells, 5,950,000; white blood cells, 13,600; neutrophils, 78.6; basophils, 0.4; eosinophils, 0.0; lymphocytes, 19.0; monocytes, 2.0; platelets normal.

Course and Treatment.—August 20: Spinal puncture repeated. Fifty cubic centimeters of clear fluid mixed with blood was removed. Pressure normal. Twenty-five cubic centimeters of "polio" serum given into each buttock and lateral thigh groups of muscles. Catheterized again. Five hundred cubic centimeters of urine obtained. Fifteen cubic centimeters of five per cent argyrol instilled. He had marked distention of the abdomen with pain. No relief from enemata, hot stoups and rectal tube. Pituitrin given with some relief. At 4 p. m. breathing was regular, much better than in the morning. Patient comfortable, temperature coming down. August 21: There was less distention. There was difficult breathing, with dilated nares. Patient was catheterized; 500 cubic centimeters of argyrol-stained urine obtained. Fifteen cubic centimeters of five per cent argyrol instilled. Condition was worse. At 4 p. m. breathing was shallow; patient very cyanotic. Oxygen given continuously. Fifty cubic centimeters of Doctor Meyer's anti-polio serum given in each thigh. One hour later, fifty cubic centimeters of convalescent serum was given intravenously. Cyanosis slightly improved by oxygen. At 8 p. m. an H. H. inhalator was obtained from the Emergency Hospital and used for one hour, but patient expired at 9:03 p. m.

Temperature was 39.7 degrees centigrade on entry. It dropped steadily and continuously until it reached 38 degrees the afternoon of the second day in the hospital, went to 38.4 degrees at midnight that night, down to 38.0 degrees the following forenoon, and to 37.7 degrees the afternoon and evening of death. The pulse varied between 64 and 118, and the respirations between 29 and 48.

Abstract of Autopsy Findings (Doctor Connor).—The subject was an unusually, powerfully built youth without external evidence of disease. The important visceral findings are as follows: There were some 200 cubic centimeters of slightly turbid liquid in each pleural cavity and numerous subpericardial and subpleural hemorrhages were present, indicating a rather acute asphyxiation. There was a hemorrhagic area in the tip of the left lobe of the liver which appeared to be traumatic. The spleen was moderately enlarged and softened.

The brain weighed 18.20 grams. There were numerous but small, reddish spots scattered throughout the brain stem and the medulla, and upon section of the cord small hemorrhages were found in the anterior horns.

Microscopic examination showed the usual perivascular lesions in the anterior horns of the cord associated with various stages in degeneration of nerve cells. This condition continues into the brain and is found in nearly all sections, excluding the cortex. There was a moderate cellular infiltration in the meninges in some of the sections. The inflammatory reaction involved also the posterior columns of the cord, but in less degree. In general the lesions are more severe and further advanced in the cervical region, the medulla, and the mid-brain. There is an incidental early bronchopneumonia.

CASE 2.—Mr. W. H., single, American, male, age eighteen years, admission No. 77138, entered University of California Hospital private medical service August 15, 1930.

Chief Complaints.—Fever, aching in legs and back.

Present Illness.—About seven days ago, on August 8 while vacationing on the Russian River, the patient developed what seemed to be a rather severe cold in the nose and throat, which seemed to extend to his chest the following day. There was a sensation of difficulty in breathing, and mild general malaise, fever, severe aching and pains in legs and lower back, sore throat, and slight respiratory difficulty. He called a physician on August 13. At this time examination showed only evidence of a general infection, red throat, etc. On August 14 he showed slight neck rigidity, fever, red throat, coated tongue, and slightly tender submaxillary lymph nodes.

Previous History.—Unimportant. No known contact with a case of poliomyelitis.

Family History.—Unimportant.

Physical Examination on Entry.—Head and neck: Flushed, florid face; slightly rigid neck; tongue heavily coated; throat definitely red. Lungs: Normal. Heart: Normal; rate 80; blood pressure, 125/80. Abdomen: Normal; soft; no tenderness; spleen, not palpable. Extremities: Positive Babinski on right; questionable Babinski on left; right knee-jerk greater than left; no Kernig; no clonus; no muscle weaknesses.

Laboratory.—Blood (August 15): Hemoglobin, 82 per cent (Sahli); red blood cells, 4,170,000; white blood cells, 16,500; neutrophils, 91 per cent; lymphocytes, 9 per cent. Urine: Negative except for trace of albumin. Spinal fluid: No increased pressure. Cell count, 105 per cubic millimeter. Differential shows 90 per cent neutrophils. Gram stain shows no organisms. Culture negative.

Blood (August 18): Red blood cells and hemoglobin normal; white blood cells, 11,200; neutrophils, 77.4 per cent; lymphocytes, 21.6 per cent; monocytes, 1.0 per cent; platelets normal.

Blood (August 23): Red blood cells and hemoglobin normal; white blood cells, 9360; neutrophils, 80 per cent; basophils, 1.0 per cent; eosinophils, 2.0 per cent; lymphocytes, 15.6 per cent, mononuclears, 1.4 per cent.

Progress and Treatment.—August 15: Patient was given forty-five cubic centimeters of convalescent poliomyelitis serum into gluteal muscles.

August 16: Patient has been sick, weak, nauseated, and miserable for the past twenty-four hours. Food nauseated him, and he has a lot of pain in the lower lumbar region. Physical examination: Some weakness of jaw and lip muscles and right facial weakness. Some difficulty in speech, but no special muscle weaknesses to account for it. Marked weakness of right hand and forearm. Some weakness of right biceps. Weakness of all muscles of left lower extremity, especially the extensors. Reflexes in these regions weak to absent. Given forty-five cubic centimeters more serum.

August 17: No weakness apparent today in any muscles of head, neck, or throat. Weakness of left arm and right leg now in addition to other two extremities.

August 18: To all practical purposes has complete flaccid paralysis of all limbs. No evidence of bulbar involvement.

August 20: Feels much better.

August 21: Complaining of much pain in legs.

August 22: Discharged home with special nurse. Had very stormy time during first three days in the hospital, with fever and rapidly advancing paralysis. His temperature remained normal after this, no progression of paralysis took place, and he seemed much better.

From August 22, 1930 to September 5, 1930 (fourteen days) patient went along with a normal temperature. He was kept in bed with protective treatment of the paralyzed lower and, particularly, paralyzed upper extremities—flat on back, thighs and legs slightly flexed, cradle over lower extremities, upper extremities in abduction. Patient was very alert mentally. He had much discomfort from pains in his lower extremities, and at no time did his neck rigidity disappear. There was considerable general restlessness, irritability, and insomnia. It was necessary to use quite large amounts of sedatives. Patient's appetite was quite good, urinary output was normal, and his bowels were regulated with mineral oil and at times cascara. Bladder and bowel control was normal. No evidence of respiratory paralysis; no difficulty in swallowing.

About September 3 to 5, patient became definitely more irritable, screamed and cried out, and complained of pains and general discomfort. On September 5, 1930, temperature elevation began and followed a steady rise until his death on September 9, 1930. Neck rigidity increased; patient began to vomit at irregular intervals and this symptom became more pronounced, taking on a projectile type. No additional neurological signs developed. Question of possible accessory nasal sinus infection was considered and ruled out after examination by Dr. Wallace Smith on September 8. As temperature continued to rise, patient became more and more irrational and showed marked signs of cerebral irritation.

Blood count, blood culture, and urine studies were made. Other than a slight leukocytosis these findings were negative. There was no evidence of pathology in the chest. The abdomen remained fairly soft and was negative. Fluid intake was kept up to about 2500 to 3000 cubic centimeters every twenty-four hours by salt solution under the skin and by glucose 10 per cent solution intravenously.

September 7, 1930, with N₂O anesthesia, spinal puncture was done by Dr. Howard Naffziger. Fluid was not under increased pressure. It was very slightly cloudy, which cloud was found to be due to blood contamination. Cell count was not entirely accurate because of presence of blood, but by estimation there were about twenty cells. No organisms were seen. Culture of fluid was negative.

September 8, 1930, patient was given fifty cubic centimeters of convalescent serum. Condition grew steadily worse and he died September 9, 1930.

Abstract of Autopsy Findings (Doctor Connor).—We have here a previously healthy well-developed young adult male who has succumbed to acute poliomyelitis. The case is unusual in that death followed a seeming constitutional recurrence of the affection twenty-three days after the onset of the initial paralysis. Peabody (Oxford System of Medicine, 5:122) has said, "Death (in acute poliomyelitis) usually occurs within the first four days after the onset of paralysis, but it rarely takes place as late as the seventh or eighth day." Ivan Wickman of Stockholm, in his series of cases, ascribed deaths after two weeks to complications such as pneumonia. It seems significant that he lists fourteen such deaths among 145 fatal cases.

The characteristic lesions of the cerebrospinal axis are present in this case. There is hyperemia of the vessels, pial mononuclear infiltration, perivascular collections of mononuclear cells, particularly following

the ramifications of the anterior spinal artery, edema and cellular infiltration of the interstitial tissue, and the parenchymatous degeneration and loss of ganglion cells. The lesions are severe throughout the length of the cord, are well-marked up into the pons, and slight changes are evident in the region of the basal nuclei.

The visceral changes are also distinctive. The lymphoid tissues are swollen, regional lymph nodes being distinct and prominent, and Malpighian bodies being enlarged in the spleen. There are focal hemorrhages in the spleen, focal necroses in the liver, and focal, acute interstitial lesions in the kidneys. The focal necrosis of liver cells has been described in poliomyelitis by Flexner, Peabody, and Draper (*Journal of the American Medical Association*, 58, 111, 1912). Acute interstitial nephritis, "with focal distribution resembling somewhat the forms of acute suppurative nephritis" is described by MacCallum ("*Textbook of Pathology*," 1925, pp. 285-286), as occurring "in the course of scarlatina or diphtheria, or other similar intense infections." We have, too, a left ventricular cardiac hypertrophy which is not considered to be pathologic, and pulmonary congestion, edema, and acute vesicular emphysema. This latter condition would point to a respiratory death, a death from asphyxia.

CASE 3.—M. McC., age thirty-five years entered Children's Hospital August 15, 1930, with a complaint of headache, backache, pains in her legs, and inability to use her right arm.

Present Illness.—The patient stated that for a week prior to entry she had had a painful heavy feeling in the epigastrium, accompanied by nervousness. Two days before entry she developed a headache and backache, and in the evening had such a marked tremor of her right hand that she had difficulty in using it. That night she had difficulty in turning over in bed because her right arm was weak. The following day all her symptoms were exaggerated, and in the evening she was nauseated and vomited. That night she was unable to turn over in bed because of weakness in her right arm. On the morning of the day of admission, she was generally weaker, and she had no use of her right hand or arm.

Physical Examination on entry showed a well-developed and well-nourished woman who looked nervous but not uncomfortable. There was slight left facial weakness. The neck was quite stiff, and the patient was unable to sit up because of stiffness of the spine. She was unable to extend the fingers, wrist, or forearm on the right, or to elevate the right shoulder. There was slight deltoid weakness on the left also. All the arm reflexes were absent on the right, and only the biceps jerk could be elicited on the left. Knee-jerks were absent on both sides, but ankle-jerks were moderately active. The lower abdominal reflexes were active, while the upper were elicited with difficulty. Temperature was 100.8 degrees. The spinal fluid was under increased pressure, and showed 108 cells per cubic millimeter, with 72 per cent polymorphonuclears. The white blood count was 17,900, with 85 per cent polymorphonuclears.

Course and Treatment.—The patient was given 75 cubic centimeters of pooled convalescent serum intramuscularly on entry, and 100 cubic centimeters was given at noon on the following day. The day after admission, the patient showed marked weakness of the left upper arm, general weakness of both legs, and beginning intercostal weakness. The weakness of the extremities was progressive, and the limbs were practically motionless after three days. Her breathing continued to be shallow, but there was no cyanosis nor remarkable change in the pulse, until shortly after midnight on August 30, when she became suddenly worse, and within a short time respiratory effort had practically ceased. The Drinker respirator was occupied at the time by another patient, whom it was, however, possible to move for a short time. The patient was placed in the machine,

and kept there for about ten hours, during which time she showed considerable improvement. At the end of that time the first patient's condition was so much worse that return to the respirator was imperative. The second patient was given artificial respiration manually, together with oxygen, throughout the afternoon and evening. Death occurred from respiratory failure at 11:55 p. m., August 20.

Abstract of Autopsy Findings (Doctor Connor).—The material findings in this case are those of a very extensive encephalopolio-myelitis. The specific lesions are marked and present generally along the cord and brain stem and extended into the basal nuclei. These consisted of the usual degenerative changes of nerve cells and a perivascular infiltration associated with a slight meningitis. There was in addition a marked edema and congestion of the lungs. Incidental findings were an early ulcerative colitis and appendiceal abscess. The connection between the last two lesions and the disease of poliomyelitis is not evident.

DISCUSSION

Dr. J. C. Geiger, Professor of Epidemiology: Certain epidemiologic characteristics of acute anterior poliomyelitis are apparently well established, yet the nature of the virus remains unknown. Moreover, the reports of the prevalence of this disease indicates, at least in California, that it is continually spreading with the occurrence of outbreaks in fairly short intervals, namely, 1925, 1927, and 1930. The method of propagation, however, remains an enigma and offers a distinct challenge to public health authorities. One of the important phases of the disease and so difficult of recognition, is the number of abortive cases that must occur in any epidemic. Admitting this to be a fact, three points present themselves for consideration. Either the contagiousness is exceedingly low if reported cases are to be regarded as a criterion, or the latent immunization to cases of the general public exceedingly high, or the carrier produced by contact to cases of comparatively little moment in the spread of the disease.

According to the figures of the California State Department of Public Health, the outbreak in California in 1930 began to be statistically manifest early in May, the curve rising rapidly to a peak in July (ninety-five and more cases reported daily), a sharp drop in August (sixty and less cases being reported daily), with a gradual climb to a second peak in October (eighty-five or more cases being reported daily) with an abrupt decline in November, 1707 cases being reported for the ten and one-half month period. The curve of the 1925 outbreak, 821 cases, reached its peak in July with a sharp decline in August and September and a gradual leveling off, with a small uplift in November. The curve of the 1927 outbreak, 1295 cases, had a series of peaks in July, in August, and in September, with a small uplift in early November. Two centers of population suffered most, Los Angeles and San Francisco in the outbreak for 1930. The second peak in the curve for 1930 probably represents the San Francisco outbreak, for cases began to be reported there much later than in Los Angeles. Curiously, only a small number of cases were reported in Oakland, just across San Francisco Bay.

The age incidence for 1930 presents some interesting data. For instance, 334 cases were reported between the age limits of 15 to 35, approximately 20 per cent of the total; 1000 cases between 0 and 10 years; 301 from 10 to 15; three from 35 to 45; three over 55, and the remainder classified as adult unknown or at present in doubt.

The George Williams Hooper Foundation for Medical Research of the University of California, which distributed convalescent poliomyelitis human plasma, report that between the period of June 1 to December 1, 1930, over 19,750 cubic centimeters were given to physicians and institutions for administration to patients. Ten thousand six hundred and fifty cubic centimeters of serum were given to physicians in San Francisco County alone. The number of

donors was two hundred and two, and thirty-eight were bled twice and nine three times during the epidemic period. It is, indeed, fortunate that research institutions have taken up the burden of supplying convalescent poliomyelitis human serum since this important health department activity has been quite neglected, though Netter advocated its use in 1910. The value of such serums is apparently well established and of practical therapeutic importance even in the absence of controls. The prophylactic use of convalescent serum for susceptible contacts cannot be advocated until the supply can meet the drastic needs of epidemic periods.

Dr. Frederick Ebersson, Assistant Professor of Medicine: These cases illustrate the protean nature and therapeutic difficulties in acute poliomyelitis. Once the diagnosis has been made, the matter of treatment resolves itself into immediate action demanding fairly large doses of convalescent poliomyelitic serum. There is no certainty with regard to the action of such serum in universally preventing paralysis. In many instances the desirable effect has been achieved; in others, despite the promptitude and adequate dosage, the unfortunate sequelae have not been prevented. It is clear, however, that once paralysis has set in, no amount of serum will avail.

Clinically, poliomyelitis presents the most baffling problems prior to the development of well-recognized signs of paralysis. As an aid to diagnosis, the lumbar puncture is of indispensable value, but this procedure cannot always be followed in practice. There are frequent instances where repeated punctures are necessary before the typical changes in the cerebrospinal fluid become apparent. Meningeal involvement may be ushered in by extreme hyperirritability, headache, or the classical "spine sign." This sign is generally described as a Kernig, perhaps inaccurately. The "spine sign" is distinctly an act of *voluntary resistance* on the part of the patient to any manipulation likely to cause anterior flexion of the spine. Unlike the Kernig or Brudzinski sign, there is no question here of a "reflex." The intense headache, photo-symptoms and signs of mild or moderate upper respiratory disturbances, or muscle and joint pains may occur in any variety of combinations or as single manifestations. In the majority of cases one meets an impasse because the history and findings suggest a simple "cold" or "influenza," or "gastro-intestinal upset." A large group also passes through a vague syndrome that goes unrecognized, and suddenly blossoms into a major or minor paralysis. Most remarkable is the disproportion between the appearance and the complaints of the patient and the actual clinical findings such as temperature or pulse changes. The observation in my experience has suggested to me the value of searching for a localized pain in the spinal column associated with the typical "spine sign." In several patients the forward tilting of the head occasioned a sharply localized pain at varying levels in the cord, suggesting the type of paralysis that might be expected from the area involved. The observation is probably not new, but can be used clinically as a guide to the subsequent course of the disease.

The beneficial effects of serum are doubtless contingent upon bringing to the regions involved a sufficient amount of immune substances. On theoretical, as well as practical grounds, the serum should be brought into contact with the nervous system by the most direct route. Repeated intraspinal injections alone or in combination with intravenous doses would be ideal. The intramuscular route, following the usual lumbar puncture for diagnosis, serves after a fashion to this extent, inasmuch as the permeability of the choroid plexus is increased and the immediate effects of the serum are thus enhanced. Under present conditions we are at a disadvantage, owing to the fact that the available serum is not exceptionally potent. The serum of choice is that which is obtainable from immune monkeys, but scarcity of supply is

a deterrent. In severe cases, however, the intraspinal and intramuscular injection of such serums in smaller doses would be worth while.

The pressing problems in poliomyelitis today are and must be concerned with the diagnosis and the development of methods for concentrating serum from all available sources; with the serious problem of detecting carriers of the disease; and with newer methods of evaluating the susceptibility of mass population by a study of the serum antibodies. That our present avenues of approach to these difficulties are meager and inefficient is self-evident. The future may yield better things in the light of intensive study that is now in progress in different parts of the world.

Rocky Mountain Spotted Fever — Gold Medal Awarded Dr. Roscoe R. Spencer.—Dr. R. R. Spencer United States Public Health Service, was awarded the gold medal by the American Medical Association in annual session at Detroit in June 1930 for original work in the preparation of a vaccine against Rocky Mountain spotted fever.

Prevention is the highest goal of scientific medical inquiry. A five-year record of practical prevention of Rocky Mountain spotted fever achieved by Doctor Spencer was the basis for the award of the medal. Rocky Mountain spotted fever is a disease of the northwestern part of the United States, conveyed to man by the bites of wood ticks which appear with the first warm days of spring or as soon as the snow melts on the south slopes of the canyons. Skin eruption appears about the third day of fever, first on the wrists, ankles, and back, and then over the whole surface of the body. In some localities the disease is mild while in others it is very fatal, causing death from the seventh to the tenth day of illness.

In one large locality the disease caused the death of 85 per cent of adults who contracted it in the twelve years 1917-1928. In that locality the quest for a preventive inoculation has gone on at the hands of Dr. R. R. Spencer of the United States Public Health Service year after year until, in 1924, came the discovery the results of which were presented to the American Medical Association.

In a community of 1208 persons, 496 received the prophylactic inoculation and among these there were three mild cases which recovered. But among the 712 who did not receive prophylactic inoculation there were nine severe cases, seven of whom died.

In a general population of about 15,000 people 1992 received prophylactic inoculation and among these there were five mild cases, all of which recovered. But among those of the population who did not receive prophylactic inoculation there were twenty severe cases, seventeen of which died.

Sheep herders constitute an occupational group especially exposed to ticks. In such a group of 274 persons ninety-four who were protected by vaccination remained free of infection, while 180 who were not protected there were thirteen cases. In another such group of 283 persons, ninety-nine who were protected furnished only one case, while 184 who were unprotected furnished nine cases.

Laboratory workers engaged in the hazardous search of the preventive (physicians, entomologists and laboratory attendants) have constituted the group especially exposed to infected ticks and infected laboratory animals and since 1902 the number of persons so exposed has been seventy-five.

Until 1924 these workers knew no special prophylactic inoculation, and of sixteen of the earlier workers so exposed six contracted the disease and all died. But since 1924 there have been fifty-nine laboratory workers all of whom have received prophylactic inoculation and among these there have been seven cases all of whom recovered, except one who received only one of the two requisite prophylactic doses.—*United States Public Health Service.*

BEDSIDE MEDICINE FOR BEDSIDE DOCTORS

An open forum for brief discussions of the workaday problems of the bedside doctor. Suggestions for subjects for discussion invited.

DIFFERENTIAL DIAGNOSIS BETWEEN SYPHILITIC AND NONSYPHILITIC ERUPTIONS

MOSES SCHOLTZ, LOS ANGELES.—After a short but severe dictatorship of the laboratory in clinical medicine, the art of clinical diagnosis seems coming back into its own. It is my steady conviction that dermatologic diagnosis is less dependent upon the laboratory report than that of any other branch of clinical medicine. This is well illustrated by the comparative ease with which the clinical diagnosis of skin syphilis can be effected with correct diagnostic technique, without or in spite of the negative laboratory report.

This holds true in regard to all types of syphilids with the exception of the primary lesion, diagnosis of which can be often suspected but cannot be made definite without positive darkfield examination.

The syndrome of characteristic morphologic traits of cutaneous syphilis was known to old clinicians who called them "specific stigmata."

It is the purpose of this short sketch to portray and enumerate these traits. The color of syphilids is properly termed "dull red raw ham" with a tendency in later stages to turn brownish or "copper color." This shade of color is not an exclusive property of syphilis and may be observed to a various degree in other infectious granulomata, much less common, such as sarcoids, ulcerating tuberculids, mycotic granulomata. Yet the presence of this color should always suggest to the clinician the possibility of syphilis.

A general statement can be made, again with the exception of the primary lesion, that the earlier the syphilitic lesions are, the more numerous and more superficial they are; and vice versa, the later, the less numerous and deeper they are.

It is also characteristic of cutaneous syphilids that they are imbedded and located deep in the skin rather than on the skin. This differentiates cutaneous syphilids from many superficial scaly dermatoses, which may resemble them morphologically, such as tinea, seborrheic dermatoses, pityriasis rosea.

It is rather typical of cutaneous syphilids to present to the palpating finger, a soft velvety feel which is so different from the dry, harsh feel given by many scaly dermatoses, such as psoriasis, lupus erythematosus, squamous eczemas, etc.

Another morphologic trait of cutaneous syphilids is the tendency to form flat lesions. This is well epitomized in flat syphilitic condylomata, but is also easily demonstrable in the large group of nodular late secondary syphilids.

One of the most striking morphologic traits of late syphilis is the serpiginous or kidney-shaped

border. This border, like the "raw ham or copper" color is seen occasionally in other infectious granulomata; nevertheless it is so much more numerous in syphilis than in other dermatoses that it can be well regarded as a specific feature.

It can be definitely stated that bullous and vesicular eruptions are never seen in acquired syphilis, but are not uncommon in hereditary. Late syphilids, particularly gummata, have a strong tendency to ulcerate, producing characteristic ulcers of serpiginous border, with a greasy, dirty lardaceous base, covered with a thick grayish, greenish discharge, drying in heavy crusts and showing no bleeding on teasing the bottom of the ulcer (an important differential feature from epitheliomata). These ulcers, on involution, leave characteristic soft, pigmented or depigmented, atrophic scars of wrinkled cigarette paper effect. As to distribution, early secondary papular syphilids preferentially attack the face and forehead (corona veneris), but also frequently attack the trunk.

As a rule, syphilids are not itchy, but exceptionally they are. Neither a suggestive history nor positive Wassermann are of decisive diagnostic significance in clinical diagnosis of cutaneous syphilis, because the history is often confusing and unreliable. Wassermann has much more diagnostic value if positive than negative, but even then it is inconclusive and merely means that the patient is luetic, but it does not necessarily prove that the skin lesions are specific since a luetic patient may contract any other dermatoses.

As to diagnostic errors in diagnosis of cutaneous syphilis, there are more errors of commission than of omission. There are more cases in which eruptions which are not specific are diagnosed as such than those in which the specific nature of the skin lesions is overlooked. Among nonspecific dermatoses that are often taken for syphilis are pityriasis rosea, annular psoriasis, erythema induratum (Bazin), blastomycosis, seborrheic dermatoses, tinea circinata, lupus vulgaris. On the other hand, the types of lues which are most commonly overlooked are: primary roseola (if the patient is examined in a dark or chilly room); palmar and plantar syphilids, if not looked for; follicular pustular syphilids, which looks so much like acne; and late squamous palmar syphilid, which so much simulates squamous eczema.

Lues is notoriously a great simulator and imitator of skin eruptions. Yet the presence of several or all specific morphologic traits suffices in a majority of the cases to supply, without laboratory support, a positive or at least suggestive clinical diagnosis of cutaneous syphilis.

C. J. LUNSFORD, OAKLAND.—The paper of Doctor Scholtz again properly calls to our attention the importance of a knowledge of the clinical features of the cutaneous syphilids. Too much stress, however, cannot be laid on the importance of the darkfield examination in cases of penile sores. The immediate diagnosis of early syphilis is too important to rely on less than exact laboratory procedure.

In the presence of the florid secondary eruptive period of syphilis there is usually a generalized bilateral and symmetrical eruption of lesions, the outstanding features of which are: (1) the grouping; (2) the polymorphism; and (3) the induration. The picture could not be otherwise, since the spirochetes are released and thrown into the blood stream in successive showers and act as embolic plugs of the branching cutaneous blood vessels. This plugging of the ends of the smaller blood vessels explains the grouping which is so characteristic. Since the resultant lesions develop slowly, the first have not disappeared before the succeeding ones appear. This explains the phenomenon of polymorphicity in which we see macules, papules, pustules, and pigmentation at one and the same time. Induration, sensed by the palpating fingers, is the necessary consequence of the swelling and the proliferation of the connective tissue and epitheloid cells, combined with the plasma cell and lymphocytic infiltration about the small blood vessels.

Inasmuch as secondary syphilis is a generalized constitutional disease, headache, joint pains, and a feeling of malaise, and especially a generalized adenopathy, are common features of the condition. Palpable epitrochlear, axillary and posterior cervical glands, together with a penile sore or a chancre scar combined with the above mentioned features, practically clinches the diagnosis of secondary syphilis.

The picture of the late cutaneous syphilids differ markedly from the florid secondaries. This difference is due to the change of so-called latency. In this stage the body cells have been educated to violently resist the presence of the active spirochetes. In consequence the resultant inflammatory reaction produces a tumor or tumors, depending on the number of embolic-plugged blood vessels involved. Such lesions are in general few in number, unilateral and asymmetrical. They usually appear at the sites of easy trauma, as the forehead, the nose, the elbows, the knees, and the palms and soles. They may remain nodular or they may ulcerate. They present certain basic features which are well to remember. The papules are grouped in shape of horseshoes; they are indurated; they are well separated from the normal skin; the papules develop by central healing and peripheral extension; the scar is thin, white, atrophic and noncontractile; the pigmentation following healing is deep and persistent.

None of these characteristics alone can be relied on to make the diagnosis of late syphilis because, as Doctor Scholtz states, any one of these characteristics may be present in any of the

chronic infections, granulomata, such as tuberculosis, leprosy, cancer, or blastomycosis. It is in properly considering and evaluating these features in varying combinations that they are of pathognomonic importance, and, according to Stokes, outrank the Wassermann in diagnostic value.

* * *

STUART C. WAY, SAN FRANCISCO.—Syphilis has been described as the "great imitator," and practically every form of primary and secondary cutaneous lesion may be simulated more or less closely by a syphilid.

Diverse types of lesions may be present from time to time in the same case, some obviously syphilitic, others so closely imitating different forms of dermatitis as to render the diagnosis difficult.

The majority of the syphilids have a peculiar tint which has been aptly described as "copper" or "ham" color. When the syphilid is pressed by a diascop and the blood squeezed out, a brownish yellow stain remains, due to the cellular deposit, but when the pressure is removed and the blood returns, the lesion assumes a redder tint, somewhat resembling ham.

With the exception of the early roseolar and pigmentary lesions, the syphilids as a rule are definitely indurated from the presence of the dense cellular infiltration in the corium.

The early syphilids come out comparatively rapidly and, after persisting for a variable period, disappear spontaneously. The late syphilids, on the other hand, develop more slowly and may persist indefinitely.

The syphilids vary in their configuration and arrangement. They usually remain discrete, but may coalesce to form circles, serpiginous or gyrate figures, or a ringed lesion may develop by peripheral extension and central involution, so that by a repetition of this process concentric rings may be formed. Again, the lesions may be grouped in clusters or a number may be arranged around a single larger lesion (corymbose syphilid) or they may be closely aggregated in irregular sheets.

The early syphilids are usually distributed symmetrically and involve especially the face, trunk, and flexor aspects of the limbs, or they may be widely disseminated over the whole cutaneous surface; the intermediary lesions have a tendency to be grouped in a circinate or corymbose manner; the late lesions are local, asymmetrical, and confined to one or more regions. Often there is a history of traumatism preceding their appearance.

Spirochetes may be found in all of the cutaneous syphilids, being profuse in the early lesions and scanty in the tertiary stages. We frequently demonstrate this for the students at the Stanford skin and syphilis clinic.

A genital chancre must be differentiated from chancroid, herpes, and scabies. Marked inguinal adenopathy is rather suggestive, but frequently

a darkfield examination is alone capable of determining whether the lesion is luetic.

Secondary cutaneous manifestations must be distinguished from:

1. An eruption of the erythema multiforme type where the lesions remain discrete, are darker in color and are present chiefly on the face, backs of the hands, wrists and front of the legs.

2. Drug rashes following the ingestion of co-paiba, cubebs, belladonna, antipyrin, etc., which show a more rapid development, are of a more vivid red or scarlet color, quite itchy as a rule, and of shorter duration.

3. Pityriasis rosea, in which the lesions are scaly. In many cases the typical oval patches with a pinkish scaly border and a buff-colored center can be detected, and there is a history of the characteristic "Herald patch."

The evanescent wheal of urticaria, with the accompanying itching and the punctate scarlet redness of scarlatina, are so unlike the macular syphiloderm that confusion with these diseases is scarcely possible.

Palmar and plantar syphilids are not uncommon and have to be distinguished from psoriasis, dermatophytosis, and dermatitis venenata, which is often of occupational origin.

Psoriasis of the palms is extremely rare and usually associated with a profuse psoriatic eruption elsewhere.

Dermatophytosis not only may involve the palms and soles, but also the dorsal surfaces. Vesicles usually characterize its onset and there is intense itching, which lessens during the later stages. Fungi may be demonstrated in the scales or by cultural methods.

Dermatitis venenata is more sudden in onset, involves first the dorsum of the hands, is more inflammatory and often limited to the exposed parts.

Late nodular syphilids have to be differentiated from tuberculosis cutis, lupus erythematosus, and epithelioma.

Tuberculous lesions generally begin in early life and evolve more slowly. Tuberculous ulcers have an ill defined or ragged border and are shallow. They are progressive and unaffected by antiluetic therapy.

In *lupus erythematosus* the lesions are of a brighter color and rarely infiltrated, while in late lues they are of a more brownish hue and definitely indurated. The distribution of lupus is quite characteristic, usually involving the cheeks, nose, and scalp.

Epitheliomata of the rodent ulcer type have a hard and cartilaginous rolled pearly edge which may be nodular or continuous. Its development is much slower than a syphilitic ulcer and may have been present for years.

The tertiary lesions of syphilis generally involve the soft parts, especially the thigh and calf regions. They may occur upon any region, however, and are not uncommon upon the face and flexor surfaces of the arms.

A gumma is usually slow in developing, persistent in its course, with a tendency to progress and invade the contiguous tissues.

While darkfield examinations and Wassermanns are more or less confirmative when positive, their actual value when negative is a matter of conjecture. Most experienced dermatologists agree that in such cases the skin manifestations themselves give us a more accurate index upon which to base our diagnosis.

Farmers Have Best Eyesight, Occupational Survey Reveals.—Farmers have the best eyesight, business and professional people have the worst and skilled workmen have the greatest percentage of uncorrected visual defects of any occupational groups, according to a statement issued by the State Health Director, Dr. Andy Hall, which is based upon the examination of 100,000 native born white males in this country. The rate of uncorrected visual defects found among the skilled workmen was 29 per cent higher than in the business and professional groups and 100 per cent higher than among farmers.

The rate of defective hearing among skilled workmen stands 31 per cent above it in the business and professional group and 23 per cent higher than in the agricultural group, it was said. The frequency of carious and lost teeth is about equal among farmers and skilled workmen, but rises to 48 per cent above that in business and professional groups, Doctor Hall pointed out.

The habitual use of laxative occurs 10 per cent more frequently among skilled workmen than among professional and business people and 32 per cent more frequently than among farmers, according to Doctor Hall's statement, which follows in full text:

"These findings are of the utmost significance in connection with health programs and especially with accident prevention projects. Uncorrected defects of vision and reduced acuteness of hearing among skilled workmen would certainly increase their proneness to accidents. This is the very group which finds itself subject to the greatest occupational accident hazards. Thus defective vision and dullness of hearing in skilled workmen make the risk to accidents even greater than their occupations would otherwise involve.

"The high rate of visual defects among professional and business people, 56.5 and 51 per cent respectively, even though largely corrected by glasses, suggests that prolonged use of the eyes in close work is wearing. It likewise emphasizes the importance of proper lighting facilities in schools, offices and business houses. Furthermore, it shows that sight conservation programs are justified by conditions and should be continued.

"The professional group studied included doctors, lawyers, writers, clergymen, teachers, engineers, etc., while the business group included executives, bankers, salesmen, clerks and the like. In the skilled workmen group were members of twenty occupations such as machinists, printers, electricians, barbers, plumbers and bricklayers.

"The medical examinations were performed by 9000 doctors in all parts of the country. The examinations were undertaken as a life conservation project by forty different life insurance companies who offered the service as a periodic health inventory to policyholders.

"The analysis of the data was done by statisticians of the United States Public Health Service and was not a feature contemplated in the original project by the insurance companies."—*The United States Daily*, September 24, 1930.

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Leaflet Regarding Rules of Publication.—California and Western Medicine has prepared a leaflet explaining its rule regarding publication. This leaflet gives suggestions on the preparation of manuscripts and of illustrations. It is suggested that contributors to this journal write to its office requesting a copy of this leaflet.

EDITORIALS*

HAS MODERN-DAY UNREST AND PUBLICITY INDUCED SANTA BARBARA COUNTY, LEGALLY OR ILLEGALLY, TO ENGAGE IN STATE MEDICINE?

Whither Is the World Drifting?—A large proportion of thinking people are nowadays asking themselves whither the world is drifting. For everywhere there seems to be more or less unrest, associated on the one hand with disturbed social and economic conditions, and on the other with the insistence by one section of the population that the remaining portion of the people shall live according to the laws and mandates which come from legislative or propagandist sources. The picture varies with continents, races and nations, but at the present time none of these but have their troubles.

* * *

The Place of the Healing Art Profession in this Whirlpool of Unrest.—In this whirlpool of unrest, so old and placid a guild as that of the healing art, is also having its greater and lesser difficulties. It is generally conceded that the practice of medicine is individualistic and that mass production in medicine can only lead to mediocre medical service. In our own country the problems of the medical profession are made more

* Editorials on subjects of scientific and clinical interest, contributed by members of the California Medical Association, are printed in the Medicine Today column which follows.

difficult because the phenomenal material progress of the United States during the last several decades seems to have been more or less dependent upon a centralization of resources and power, with mass production as the outstanding result to be secured thereby. This new era has brought to the fore groups of lay leaders who through their own great success in the business and manufacturing worlds have come to believe that the same procedures which brought them their personal successes could be made to apply in most all other lines of human endeavor.

* * *

The Recent Outburst of Mr. Henry Ford.—Such leaders are not reluctant in pushing forward their views. Witness, for instance, that esteemed automotive representative, Mr. Henry Ford, who in recent years seems to have had no hesitancy in lecturing the medical and other professions and businesses, even though his actual knowledge of their work and responsibilities, in more instances than one, might perhaps best be represented by a large or relative zero. Unfortunately, many of his statements will be accepted as proven facts by those of the laity who have neither the inclination nor the time to investigate and to determine whether or not Mr. Ford's viewpoints were correct or not.

Henry Ford's recent interview about the medical profession and its delinquencies was quite a newspaper feature story and received much publicity in lay publications. (See editorial in CALIFORNIA AND WESTERN MEDICINE, July, 1929, page 59.) The newspapers which published that syndicated article naturally did not put forward later on the contradictory facts which would have shown that Mr. Ford was in error in much of what he thought and said. The end result of that interview was the acceptance of Mr. Ford's opinions by a large number of the lay public. With such publicity conditions obtaining, it is not to be wondered at that a considerable group of lay writers, who by the use of their pens earn their bread and butter, also should have seized upon different phases of statements made by Mr. Ford and others to further exploit and accentuate the viewpoints which had been brought forward.

* * *

The Medical Profession Will Continue to Carry On in Service.—Fortunately for the world, the rank and file of the medical profession are little disturbed by such outbursts. Members of the medical profession everywhere will continue to give service to their lay fellows in the light of the best knowledge at hand, and will unostentatiously carry on in their efforts to prevent diseases and to ameliorate and cure diseases.

* * *

What of the Future Outlook?—If the conditions above noted showed no further variations, all would be well, and there would be little need for worry, since history has established that in

good time all false prophets are discovered and that the propaganda of such is eventually discarded.

Unfortunately, however, the world is moving so fast in its present unsettled state, and so many of those in temporary authority in civic and other human activities are so satisfied with their personal viewpoints, that they show no hesitancy in trying to put into practice some of their theories on problems which they have deluded themselves into thinking they have solved. All of which brings us to an example of an attempt to put into practice a theory which involves the practice of medicine, and which experiment is taking place before our eyes in California at the present moment.

* * *

Santa Barbara County Supervisors Inaugurate State Support of Hospitalization of Private Citizens.—Here in California, down in Santa Barbara County, we are having the opportunity of witnessing an experiment in which public moneys from taxation sources are seemingly being used by the county board of supervisors in a non-public function, in that these public officials are offering to non-indigent citizens of Santa Barbara County hospitalization at "rates less than cost." Perhaps the honorable supervisors who passed an ordinance or rule permitting themselves to do this will pass an ordinance giving themselves the right to spend public moneys to supply non-indigent citizens with clothing, shoes, bread and foodstuffs also at "rates less than cost"! The expenditure of public moneys would certainly seem to be as proper for these latter needs just mentioned as for the provision of hospitalization facilities for private, non-indigent citizens. From the legal standpoint, such allocations and expenditure of public funds would seemingly be as sound in the one instance as in the other.

The editor is not a lawyer, but he believes that the board of supervisors of Santa Barbara County, in taking the action they did in providing certain hospitalization provisions for private, non-indigent or non-pauper citizens, could very properly be brought before the courts to show on what authority in the basic law of the constitution of California, some of their expenditures in hospitalization experiments were being made. The state constitution gives the county units the right to maintain county hospitals and to support the same through public funds, but it is also our impression that it is provided that such facilities shall be extended only to indigent citizens. It will be interesting to watch the outcome of the experiment in Santa Barbara County in this—what might be called an initial experiment in state medicine in California. It is true that at the present time the experiment is only a small beginning, but the legal and other principles involved are not small. The importance of this strange departure in Santa Barbara County, both for the todays and the tomorrows, must be evident to all physicians in California. For the time being, members of the Santa Barbara County

Medical Society are of course especially involved and will no doubt give this new problem which has arisen in their own county their earnest consideration. For action of the Santa Barbara Society on some of these matters, see report of that society in this number of CALIFORNIA AND WESTERN MEDICINE, pages 130 and 131.

* * *

The Letter which the County Supervisors Issued to Santa Barbara County Citizens.—The letter which was sent out by Mr. C. L. Preisker, chairman of the board of supervisors of Santa Barbara County, is very interesting. Because of its importance the copy which has come to the editor will be reproduced in part below. The editor has taken the liberty to italicize several sentences. Members of the California Medical Association are urged to read and ponder on these quotations, which follow:

The County of Santa Barbara is offering its employees and their families hospital, ambulance, x-ray, medicine, dressing, laboratory service, and everything that can be furnished at Santa Maria Hospital at the following rates:

1. Persons earning less than \$125 per month, 50 cents per person per month and not over \$1.50 per month per family.

2. Persons earning \$125 per month and less than \$200 per month, 75 cents per person per month and not over \$2.25 per month per family.

3. Persons earning \$200 or more per month, \$1 per person per month and not over \$3 per month per family.

This service includes hospital service for operations, maternity cases, accidents, and also includes services for accidents and illness starting the month after leaving county employ, unless the person is discharged for a cause. . . .

For the county to lose a minimum, it must not only get its patients well as soon as possible, but must keep them well. *The rates are less than cost*, and are based on the ability of the person to pay, *as hospitalization is coming to be looked upon somewhat as a public function.* . . .

This service is open to groups such as teachers, employees of different business houses or corporations, unions, or any logical group applying for the same where ten or more apply, at five per cent higher charge or rate than the above schedule. It is also open to individuals, but the county reserves the right during the first year to refuse hospital service for operations and treatment for very apparent chronic ailments existing at the time the individual applies. It would not be fair to the county for \$1 per month to take on an individual sick person who immediately needs a very expensive operation or treatment. . . .

An attempt is being made to make arrangements with various doctors in the community to furnish complete medical and surgical service at a fixed monthly charge.

This is insurance against large bills for sickness.

* * *

Query for Members of the California Medical Association.—Each member of the California Medical Association might well ask himself what he thinks of all this and what he thinks should be done in these premises. Members of the Association and its county medical societies are urged not to be backward in sending in their suggestions to the central office of the Association. The Council of the California Medical Association will then be in better position to decide on its course of action.

**HOW PUBLIC HEALTH EXHIBITS AT
COUNTY FAIRS MAY OVERCOME
PSEUDOSCIENTIFIC NEWS-
PAPER AND RADIO
PROPAGANDA**

We Live in an Age of Propaganda.—Ours is a time when the dissemination of information—be such information of fact or rumor, or of true or untrue nature—has reached a stage when the words stupendous and colossal can be most aptly applied thereto. The loudest or more persistent speakers, or rather the individuals or persons who best know how to use their resources to get the large audiences, are those who see their statements, garnished as they usually are in most enticing form, in many instances most widely accepted.

* * *

Recent Advancements in Science Seem to not Lessen the Credulity of the Human Race.—It is a remarkable fact that during the last several decades, in a period when scientific medicine may be said to have made more progress than in early times took place in whole centuries, that the publicity given to such scientific researches has seemingly had little effect on making all supposedly intelligent lay persons turn to well-trained practitioners of the healing art, when suffering from sickness or injury. It is a constant source of astonishment to busy physicians to note how many patients blandly confess that for varying periods they have been under treatment by cultist practitioners; or who blandly ask specialists whether there is any objection to some form of manipulative or similar therapy being taken at the same time from cultist practitioners.

* * *

The Purpose of Healing Art Laws.—It is often hard to explain these and other inconsistencies.

Could it not be said that such experiences are the result, in part, of some of the cultist so-called health column publicity in the daily press or of some of the misbranded and fraudulent cultist or proprietary medicine propaganda which is creeping in more and more on the radio air? That such conditions should obtain seems the more difficult to understand because the members of the regular profession have been almost entirely responsible for the basic medical practice acts which lay down standards of adequate preliminary and professional education and training. Such medical practice acts were and are intended to have as their basic function the protection of the public from incompetent physicians. Yet the non-sectarian profession has had to battle fiercely for these laws which have as their basic purpose the protection from incompetents, not of itself, but of the lay public.

In most of the states the legislatures of the commonwealths of our Union have seen fit, in spite of the strenuous opposition of the organized practitioners of non-sectarian medicine who have protested at the debauchery of training standards, to grant licensure privileges to cultist groups of

the healing art. Most of these cultist licensure laws lay down standards of education and training far below those insisted upon by the Association of American Medical Colleges and by the Council on Medical Education of the American Medical Association.

* * *

California Presents a Pathetic Example in Healing Art Licensure.—No better example of such deplorable violation of proper standards of educational and professional training need be looked for than can be found in our own State of California. In the December issue of CALIFORNIA AND WESTERN MEDICINE, page 915, was printed one of the monthly reports of the California Department of Professional Standards, in which department, under Division No. 1, the Board of Medical Examiners has a place.

Under Division No. 2, the figures showing the number of licentiates who in the last decade have been granted licenses as "doctors" of the healing art of one particular cult were given. Almost three thousand of such have been licensed in California in the last ten years!

In some of the Sunday metropolitan newspapers of California may be found the alluring and come-on advertisements of some of the schools of that cult. From time to time illustrated single, double and triple column reading notices have appeared in the news columns of newspapers, playing up "perfect infant," "most beautiful female back" and what-not side-shows held at the annual or other sessions of the societies of such cults. To these "beautiful female back" shows the members of the laity are often invited.

In another cultist group, prize contest announcements were sent out to the high schools, inviting all students to participate. The daily press recurrently made mention of the contest, and much free or paid for publicity was thus secured for that cult. The award in one such contest, if our memory serves us well, was one year's free tuition in a school of the cult. This award was granted to the high school student who gave the best reasons why a young man should choose as his life work the practice of the profession of that particular cult.

* * *

What One California Cultist Initiative Law Sanctions.—As previously stated, one of these cultist groups has licensed about 3000 practitioners of that cult in California in the last ten years or so. That is a large number for even so large a state as California to assimilate, digest and take unto itself. The law bringing into existence the examining board of that cult contains many defects, but was passed as an initiative act, and therefore can only be amended by the people. Yet that law, sanctioned several years ago by vote of the electors of California, makes it obligatory for the examining board of that particular cult to accept the diplomas of practically all chartered schools of that cult, without regard to the quan-

tity or quality of the courses given. The language is so loose that diplomas of any kind of a state-chartered school of that cult must be accepted. The examining board of that cult cannot step in and inspect the schools in an effort to maintain the standards which even its own members favor. And this in California, the sixth state in the Union, with its 1930 United States census population of 5,672,009 persons. Truly a remarkable state of affairs.

* * *

How a "Health Column" in One of the California Newspapers Operates.—Nor is the above citation all. For in one of the well-known newspapers of California, a publication with advertising figures comparing favorably with those of papers of cities such as New York and Chicago, there is a so-called health column in one of its magazine sections flanked by and including a surprising number of what seem to be misleading advertisements. This particular health column for the last several decades has been one of the big revenue producers of that portion of this particular newspaper, and the present editor of its columns is said to maintain a suite of offices covering almost the entire floor of one of the large buildings in that particular city, where he supposedly practices the healing art according to the tenets of his cult.

* * *

Why Lay Citizens So Often Choose Poorly Trained Licentiates.—The above are some of the facts which exist and with which California physicians are generally familiar. Is it any wonder that, with such iteration and reiteration of cultist propaganda and of stuff of similar nature appearing constantly in the newspapers and coming daily over the radio air, that then, when sickness and injury come to them, hundreds and thousands of citizens innocently choose poorly rather than well trained practitioners of the healing art?

* * *

Difficulties in Trying to Improve Such Conditions.—What can be done about conditions such as have been noted? The answer oftentimes must be: not very much. For the State of California, once having granted legal licenses to practice the healing art, cannot recall such licenses except for legal causes; and the electors having voted a deplorable set of minimum standards for licensure of certain cults, only the people by again registering their votes in favor thereof can raise or better those deplorable standards.

So, also, it may be taken for granted that the newspaper above commented upon will not change its ways, because all publishers nearly always wish their papers to be run at a profit, and medical advertisements such as are referred to help make for such profits. It is perhaps true that if every member of the county medical association of the city in question would stop his subscription for that particular newspaper, and take part also in a campaign to have friends and pa-

tients also drop their subscriptions, that the publisher of that particular paper perhaps might be tempted to "stop, look and listen." However, such a coördinated and almost unanimous effort by all the members of that particularly large county medical society is a something which is altogether too much to ask or expect.

So that when it is all said and done, there is little for the members of the non-sectarian or regular medical profession to do, other than to follow the course laid down in the past—of practicing scientific medicine to the best of their ability and of doing right and fearing not.

However, from the standpoint of preventive medicine, the regular or non-sectarian profession does owe it to itself and to the public to enlighten the laity concerning health and concerning disease prevention. Such publicity the profession has given in the past through publication of journals on hygiene and of miscellaneous papers. Are any more effective methods available?

* * *

A Notable Experiment by the Nebraska State Association.—More recently a unique health plan and campaign has been tried out in Nebraska, largely under the leadership of E. R. Hays, M. D. For the last half dozen years or so, under Doctor Hays' guidance, the Nebraska State Medical Association has been operating exhibits and health education programs at the state and other fairs in Nebraska. Doctor Hays read a paper on the subject at the 1929 American Medical Association conference of state medical association editors and secretaries at Chicago. The editor of CALIFORNIA AND WESTERN MEDICINE was so impressed therewith that a budget provision was made by the Council of the California Medical Association for initiating this work in California. The standing committee on health and public instruction was requested to make a further study of its feasibility in California, and to report thereon to the Council. Because of the important possibilities of such work, this special comment thereon is here made in the hope of enlisting coöperation throughout the state.

In the miscellany department of this number of CALIFORNIA AND WESTERN MEDICINE is also printed a list of the different fairs which are annually held in California. See page 136.

An inspection of that list, with a knowledge of the hundreds of thousands of lay citizens who attend such fairs, at once indicates how valuable this type of publicity could be made in the promotion of preventive medicine and of legitimate public health work.

* * *

Outline of the Nebraska Plan by Doctor Hays.—In a letter to the editor, Doctor Hays discusses his plan, and from it the following excerpts are made:

The most important thing in a health education project is to have someone head the organization who can visualize the result of a five years' project, and who is able to obtain the coöperation of his fellow

members, capable of organizing all health agencies under his direction, and willing to work. . . . Keeping the profession in line through strong leaders of each division is more difficult than interesting the public.

The lecturers should be instructed never to talk over ten minutes, to use simple terms and constructive arguments. They should talk health, not disease. . . .

In the exhibit division the public is always interested in pathologic specimens, and lectures should be given on the specimens, pointing out that there was a time in the individual's life when this condition which caused his death might have been prevented. Deficiency diseases demonstrated by rats and guinea pigs attract attention and forcibly impress the public with the importance of a balanced diet. . . .

The Tuberculosis Society, Red Cross, and other health organizations are always glad to furnish exhibits. We have always been careful about excluding commercial houses and life insurance companies from exhibiting. All exhibits should be shown under the name of the State Association, which at all times must have control of the activities of each group. The medical colleges and the state department of health usually furnish educational exhibits on water supply, milk supply, contagious disease prevention, and the value of standardized hospitals. . . .

The State and County Fair plan of educating the public in matters of health is practical and very effective, and for a large state such as yours, with its many resources, a health program could be made one of the most interesting features of the fairs.

In another letter, Doctor Hays also stated that it is advisable that none of the lecturers should be residents in the same communities in which the fairs are held.

* * *

The Nebraska Plan Worthy of Earnest Consideration by the California, Nevada, and Utah State Associations.—It is hoped to have a more complete report on this subject at the San Francisco annual session which will be held April 27-30 next. In the meantime, members of the profession who are interested and who would be willing to coöperate are invited to send their names and suggestions to the Association secretary at the central office in San Francisco. The plan is also commended to the consideration of our colleagues in the Nevada and Utah State Medical Association.

This Nebraska plan of a Health Education project and campaign has been most successfully carried on in that state. It could be made equally valuable in California. With the coöperation which should be given, it could be made a success and be of great value in the states of California, Nevada and Utah.

ASSEMBLY BILL 477 (NEILSON) PROVIDES FOR A STATE MEDICAL LIBRARY

A State Medical Library to Operate Under the California Division of Libraries at Sacramento.—A state medical library with central headquarters in the general state library at Sacramento was first proposed by the editor in the November 1928 number of CALIFORNIA AND WESTERN MEDICINE, page 343. It was shown that such an institution could be brought into existence

through allocation of excess reserve funds which had accumulated to the credit of the California Board of Medical Examiners. Those excess funds, all of which came from license fees of physicians, were in more or less danger of being transferred into the general funds of the state, to be used on roads and what not. Two years ago a bill was introduced into the legislature to provide for such a state medical library, but failed of passage.

* * *

Revised Bill Introduced by Assemblyman Roy J. Neilson of Sacramento.—On January 20, 1931, Assemblyman Roy J. Neilson of Sacramento introduced a new state medical library bill, as revised by the California Medical Association Executive and Public Policy Committees. Its number on the legislative calendar is A. B. 477 (Neilson). It is hoped that it will go on to passage and signature by the Governor. The subject will be discussed again in these columns.

Probable Cause of Jamaica Ginger Paralysis.—A peculiar form of paralysis, perhaps unlike anything ever known before, has recently afflicted a relatively large proportion of the population throughout some of the midwestern and southwestern states. Definite figures on the extent of the disease are not available, but it is certain that the numbers run into the thousands. At the request of the state health authorities of several states, the United States Public Health Service undertook studies of this condition. The investigations made in some of the stricken areas in Ohio and Tennessee seem to confirm the widespread rumor that the disease is closely associated with the drinking of an adulterated fluid extract of ginger. That it could not be due to the ginger as such became clearly evident from the fact that many of the victims when questioned admitted freely of having used similar preparations for beverage purposes for from one to five years with no other effects than those derived from the alcohol. It soon became evident, therefore, that the condition must have resulted from some unknown poison or from some known poison whose action was so altered through the ginger or the alcohol as to render it unrecognizable; which poison in some way got into a manufactured lot of so-called fluid extract of ginger at a relatively recent date.

The possibility of some known or only partially known poison with its properties so altered as to produce a condition in man heretofore virtually unknown, must be considered. From the very nature of the problem it would seem not improbable that the suspected ginger contained some denaturant, since denatured alcohol might very well have been, and probably was, used in the manufacture of some of the ginger extract, or that it contained some adulterant, since it is known with certainty that adulterants of various kinds have been used for some years in the manufacture of this preparation. The studies conducted by the Public Health Service, though by no means complete, seem to indicate that the latter explanation appears to be the correct one, though the mechanism of the suspected adulterant is as yet not clear.

The exact nature of the pharmacology of the compound which has been found uniformly present in suspected ginger and absent in unsuspected ginger is as yet unknown. From its chemical behavior it appears to resemble a phosphoric acid ester of tricresol, which in itself does not appear to be a well-defined chemical entity. Its resistance to heat, the strong alkali and extreme heat required for its saponification, and the fact that phosphate has been found in the suspected gingers, would make it very probable that it may indeed be the ester suggested.

MEDICINE TODAY

This department of California and Western Medicine presents editorial comment by contributing members on items of medical progress, science and practice, and on topics from recent medical books or journals. An invitation is extended to every member of the California, Nevada and Utah Medical Associations to submit brief editorial discussions suitable for publication in this department. No presentation should be over five hundred words in length.

Preventive Medicine.—Preventive medicine is increasingly engaging the thought of the medical profession and the general public. The major diseases of yesterday are reduced to practical insignificance by modern methods of sanitation and immunization. Protection against typhoid, smallpox, and diphtheria can now be obtained without effort or danger.

Unfortunately the public health movement does not move forward smoothly nor at times intelligently. While every calamity begets reforms, health is a positive condition but many times its opportunities are overlooked. Thrift in expenditures for health matters must be wisely guided. Many of the general public are not aware of how the other half lives. Ignorance in accepted health principles is inexcusable, and the responsibility of health departments to communicate knowledge regarding health principles is obvious. This educational procedure must be based on facts, which facts are usually obtained only by painstaking research work in universities by philanthropic foundations, by health departments, and by governmental agencies. As a result of such research, one can now appreciate and evaluate the effect of sunlight and proper ventilation and, last but not least, the effect of food on disease.

Practically every disease affecting the human being is susceptible of some measure of control. The health officer of the future must assume the responsibility for such control. This does not mean the application of police power, the making and passing of new ordinances or presuming that ordinary quarantine is continuously effective. The medical profession should have intelligent and serious regard for, and give active coöperation to such matters. Likewise, the medical school must realize that in the undergraduate curriculum a place of importance must be admitted to preventive medicine, preferably in the fourth year. Moreover the teachers of medicine, of whatever specialty, should conform their courses to the more recently accepted idea that the duty of the physician is to promote health and prevent disease inimical to health. The health officer is aware that 30 per cent or more of confinements of women occur without medical attendance and that, as a result, the toll of death among about three million women from abortion, miscarriages, premature labors, accidents at delivery, is such that its ultimate effect is felt everywhere. The health officer meets seven hundred thousand cases of communicable and preventable diseases in children; problems of malnutrition, involving at least four millions of the people; problems of physical defects, such as vision, adenoids, tonsils,

and teeth, involving at least twenty millions. Preventive medicine, in its larger vision, is the task of making the unfit, fit; and of keeping the well, well. While health work is primarily and generally fundamentally attached to medicine in all of its heterogeneous branches, it is, nevertheless, the specialty of medicine most unappreciated by organized medicine itself. In some medical schools the lack of any attempt to permeate the curriculum with the spirit and methods of preventive medicine and public health procedures may account for the abortive and somnolent regard manifested by their graduates and students.

The endorsement by the medical profession of new work to be attempted in public health is of extraordinary importance. Whenever physicians become interested in public health work, it benefits the public and the profession. This kind of endeavor is by no means a conspiracy against the profession, for they gain more than they give. The modern health department teaches by the written and spoken work, by exhibits, pamphlets and other propaganda, that the acorn of sanitation may be planted in the soil of the large audiences. Two of the modern weapons of health work are bacteriology and epidemiology. Many of our older and sometimes successful health officials and the medical profession regard them as synonymous. As a matter of fact, loimology or loimography (characterized as the sum of human knowledge regarding pestilence) was known long before the science of bacteriology came into existence.

Another problem often neglected is that of midwifery. Infant and maternal mortality is usually 40 per cent incompetence, and lack of information. Dissemination of knowledge combats cults, for cults appeal, like medicine of ancient days, to the mysterious, the undo-able and the unknowable; while modern medicine appeals to the intelligence.

We rightfully revere Louis Pasteur, the real founder of preventive medicine. The revolutionizing of medicine, so ably begun by a chemist, was given great impetus by Tyndall, a physicist, and by Robert Koch, a bacteriologist. Bacteriology has revolutionized isolation and quarantine procedures, particularly by recognition of the fact of the healthy carrier. Theobald Smith focused attention to the importance of transmission of disease by insects. Biggs really modernized public health practice in the United States. Scientific medicine and public health are by no means closed books. The practicing physician should always be in the forefront in the battle against preventable diseases, and be able to answer these questions

affirmatively. Is he educating families under his care according to the principles of preventive medicine? Is he securing requests for yearly physical examinations or for administration or some accepted immunizing agent against disease at the right period of life? There is still another side to this argumentative question. Is the health official aiding the physician in this fundamental work of preventive medicine? The health department does not desire to carry on any piece of work that the physician should do, but neglect of activities of this character leads to clinics and subsequent friction. Preventive medicine offers today to the practicing physician, not another specialty of medicine, but a most valuable avenue through which to guide patients and families who are in need of medical attention to the care of the personal physician.

J. C. GEIGER, San Francisco.

Blood Pressure Determination.—Blood pressure determination seems such a simple procedure that it is apparently superfluous to many to attempt to clarify what at first sight needs no clarification. But the writer has recently had a few experiences which indicate that mention of a few possible, and even frequent, causes of error in this regard will not be amiss.

Very frequently patients will remark that the doctor has told them that it makes no difference on which part of the body, from head to toe, the blood pressure is taken. That this statement is grossly in error is immediately evident to anyone familiar with the elements of the principles of hydraulics. The pressure at different levels in a column of fluid varies directly as the depth of this level or inversely as its height, and this applies also to the column of blood in a vessel.

For some not very obvious reason the blood pressure taken at the same level on the two sides of the body (as right and left elbows) may, and often does, vary, and sometimes quite considerably. This variation is more prominent usually in the systolic figures, as in the following case: right arm, 120/75; left arm, 145/70; but the diastolic figure also may vary considerably.

Much less known than the above is the so-called auscultatory gap, the "trou auscultatoire" of the French. This is a sudden loss, or decrease in intensity, of the sounds heard during the release of the pressure in the cuff of the sphygmomanometer. In a hypertension patient seen recently, the figures were 240-220 . . . 190-130. The length of this silent period is variable, its extent in different cases having been from 10 to 50 millimeters of mercury. It is not constantly present in the same individual, and its level and extent are also not constant in the same person. The explanations given for this phenomenon are many and unproven, but it does seem to be related to hypertension and to aortic stenosis, these having been present in all the recorded cases except for those of aneurysm and compression of the subclavian or brachial artery

mentioned by Gallavardin and Tixier,¹ and Gallavardin and Barbier,² and there seems to be a possible relationship toward an anacrotic pulse. The latter is present in cases of stiff arteries and of stenosis of the semilunar valves, according to Howell,³ and Erlanger⁴ who found that sounds in the first and second phases, as heard in the auscultatory method of blood pressure determination, become faint and often disappear if the artery below the cuff is temporarily occluded. This latter is the same as increasing the peripheral resistance and thus imitates the conditions present in lessened vascular elasticity and gives a quickened reflection of the pulse wave, which is presumed to be in etiological relationship. Von Kries⁵ states that the anacrotic pulse may be produced by raising the arm, which he believes favors reflection of the pulse wave from the periphery and that the anacrotic pulse is simply a quickly reflected wave. However, von Recklinghausen states that conditions leading to diminution in vascular tone and dilatation of the arteries produce "weak reflection" and an anacrotic pulse. Constriction of the small arteries in any system favors quick reflection in the artery supplying the system and produces a pulse with a sharp-pointed apex. It does seem that, if there is an increased peripheral resistance, the blood pressure during the second phase, when the flow into the artery distal to the cuff is ordinarily rapid, may mount, owing to the high peripheral resistance, to a height sufficient to cause the sounds to disappear for a definite interval and to become audible again when the louder sounds of the third phase develop.

Recently, in a patient with unmistakable chronic gout, the blood pressure was taken with the patient standing and was found to be 190/80 while the pulse was 126 and regular. Thorough examination revealed no reason for the tachycardia; however, a surprising finding was a sudden rise of the blood pressure to 235/80 and a drop in pulse rate to 52, the rate remaining regular, in either the sitting or reclining position. Standing caused the pulse and blood pressure to revert to the previous figures. This was checked a number of times, and each time the same changes occurred in the same positions. No reason for this change could be found. The heart was only slightly enlarged to percussion, and this was confirmed by the orthocardiogram; blood count, urine, and Wassermann were all negative and the blood uric acid was only a high normal. Electrocardiogram was normal.

Perhaps better known, but not always sufficiently considered, is the fact that the first blood pressure reading is not in most cases the true one.

¹ Gallavardin et Tixier. Dissociation sphygmomanométrique oscillatoire et vibro-auscultatoire dans un cas de rétrécissement aortique serré et insuffisance aortique avec pulsus tardus et anacrotisme. *Arch. d. mal. du coeur*, 12, 447, 1919.

² Gallavardin et Barbier. Le trou auscultatoire et ses conditions de production. *Lyon méd.*, 130, 605, 1921.

³ Howell. *Textbook of Physiology*.

⁴ Erlanger, J. Studies in blood pressure estimations by indirect methods. II. The mechanism of the compression sounds of Korotkoff. *Am. J. Physiol.*, 40, 82, 1916.

⁵ Von Kries. *Studien der Pulslehre*, 1892.

This is so in secondary hypertension as well as in the primary, or essential, form. In the latter type, Ayman,⁶ after investigation, recently concluded that "the instability of the blood pressure in essential hypertension will often lead to normal readings of the blood pressure if the patient sits quietly for from five to twenty minutes" and that this occurs even in patients with widespread vascular changes, he having observed this to occur in 56 per cent of seventy-six unselected cases. Just as the French speak of a "consultation murmur," so we may speak of a psychic or "consultation" hypertension.

Above are just a few facts to indicate that blood pressure determinations are not the simple procedures they are thought to be by many, and that care should be exercised in their determination.

LOUIS BALTIMORE, Los Angeles.

⁶ Ayman, David. Normal blood pressure in essential hypertension. *J. A. M. A.*, 94, 1214, April 19, 1930.

Di Sodium Tetra Iodo Ortho Sulpho Benzo Ate.—Sounds like a college yell or the chorus of a comic opera. But it is neither. Merely the de-floyd-gibson-ized name of a new adjunct to x-ray diagnosis. Injected into diseased joints, it has led to such real or psychic improvement that several patients have asked for a second "treatment." Nevertheless no curative effect is claimed for the new polysyllabic drug. The discovery of this new substance is of particular interest as exemplifying the painstaking modesty of ethical medical research, as contrasted with the flaming headlines of research charlatanism.

In order to prescribe rational treatment in joint disease, it is necessary to determine the exact local pathologic condition. Abnormalities in bones are readily photographed, but such photographs throw little or no light on lesions of the synovial membrane and surrounding soft parts. Changes in these non-osseous tissues are readily determined by the new diagnostic agent.

In order to discover or invent a safe injection mass for joint cavities, it was necessary for research chemists to find or synthesize some x-ray opaque substance, absolutely nontoxic for synovial tissues, readily diffusible through joint membranes, and rapidly eliminated by the kidneys. During the last fifteen years, numerous substances have been tested by Doctor Keller and his associates, orthopedic surgeons of the Neurological Hospital, New York City.¹ At the end of this period the substance whose disjointed name is at the head of this item was perfected.

A solution of this salt isotonic with human blood was first found by Doctor Keller and his collaborators² to be nonirritating when instilled into the conjunctival sac of the human eye. Subcutaneous, intramuscular and intravenous injections

into lower animals gave no evidences of local irritation or general toxicity. The new drug was rapidly eliminated by the kidneys without causing demonstrable disturbance in kidney function. Administered to rats, previously trained to find their way through a circular maze, the new compound produced no demonstrable psychic or neuromuscular disturbance. Injected into joint cavities, clear x-ray pictures were obtained of normal synovial sacs.

Isotonic solutions of the new agent were now injected into the synovial sacs of arthritic cases. Such injections were found to give distinct x-ray shadows, showing synovial adhesions and other partial obliterations of joint cavities. Altered synovial permeability was estimated from the altered rate of excretions by the kidneys. In many cases the real or psychic after-effects were so pleasant that the patient mistook the new method of diagnosis for specific treatment, and asked for a second injection.

Doctor Keller's failure to exploit his new polysyllabic drug as the long-sought-for specific for articular rheumatism has probably cost the New York hospital a million dollars of easy money, readily extractable from a credulous public.

W. H. MANWARING, Stanford University.

Cancer of the Stomach.—Cancer of the stomach, while necessarily a surgical condition, is of vital importance to the internist and general practitioner. Its early recognition very frequently depends upon them, owing to the fact that they are usually the first medical contacts which the patient makes. This being the case great responsibility falls upon them and it is necessary that their conception of the disease be one well seasoned with good judgment which implies:

1. Diagnostic skill.
2. An acceptance of recognized views, especially those that pertain to gastric ulcer as a probable soil for malignancy.
3. Selected medical treatment.

Diagnostic skill embraces more than its name implies. This applies especially to this disease. Exhaustive examinations may fail to reveal organic disease, but in spite of this, a mind open to all possibilities and permitting an exploratory operation in selected cases, is consistent with good judgment, as it often permits of the discovery of a malignant condition in its early stages.

That a neurotic individual who has been subject to gastro-intestinal symptoms for years may develop an accompanying malignancy should never be overlooked.

Cancer of the stomach may simulate an ulcer even though it has not had an ulcer background. No patient with gastro-intestinal symptoms, or with certain other findings such as an obscure anemia, even though unaccompanied by gastric symptoms, should be denied an x-ray study. In the final analysis our most valuable information is obtained from this source. My only criticism of its use is that a final verdict is frequently based

¹ Keller, H. Experimental Studies on Visualization of Joints by Injections of a Drug. *Proc. Soc. Exper. Biol. and Med.*, 27, 852, May 1930.

² Macht, D. I., and Twiss, D. A Pharmacological Study of Sodium Tetra-iodo-ortho-sulpho Benzoate. *Ibid.*, 27, 850, May 1930.

on one examination. In obscure cases, repeated x-ray studies at least several times, over a few weeks to a few months, should be made.

Pathology of the stomach is especially prone to involve the pyloric region. Too much should not be expected of the roentgenologist in specifying exactly the character of the trouble. A lesion at the pylorus is frequently all that the pathologist can admit. This should be ample for us to advise surgery.

Gastric analysis and stool examinations for occult blood, while helpful, are far from diagnostic. They should always be utilized especially in doubtful cases.

Fifty per cent of patients with cancer of the stomach show the presence of free hydrochloric acid and at times a hyperacidity. An interesting observation of Hartman's shows the prognostic significance of the presence or absence of free hydrochloric acid in the gastric contents. In a series of eighty cases he has shown that a patient with a resectable carcinoma of the stomach and an acidity has a 44 per cent chance of, at least, five years of life, postoperatively, and twice the chance of a similar patient with free hydrochloric acid.

The differential diagnosis between cancer of the stomach and pernicious anemia should not ordinarily be difficult. In a series of 144 cases of severe secondary anemia with hemoglobin of thirty or less reported by me, twenty-six were due to cancer of the stomach. Not one of these had a blood count that could be confused with that of pernicious anemia. The color index varied between three and six. It should be understood that a normal blood picture is frequently present.

Syphilis of the stomach may be confused with cancer. The fairly characteristic x-ray findings, absence of a mass, with big filling defect and response to treatment differentiates syphilis readily.

In all doubtful cases and in many so-called inoperable cases of cancer of the stomach, potassium iodid should be tried.

In our efforts to prevent gastric cancer, the potential chances for malignancy to develop on a gastric ulcer should be borne in mind. The safest course demands that a gastric ulcer receive immediate surgical intervention. This is especially true after the age of 35 to 40, although the occasional occurrence of malignancy in the young would indicate the advisability of this procedure under this age as well.

Any medical treatment should be restricted to:

1. Certain preoperative measures such as are indicated in cases associated with obstruction, especially with an accompanying alkalosis. The latter syndrome is of extreme importance and its recognition is determined by the chloride and carbon dioxide combining power estimation. Other preoperative measures such as transfusion, if necessary should receive attention.

2. Postoperative management is usually necessary and frequently over a long period of time.

Patients are too frequently discharged as cured, important subsequent measures and operations being neglected.

3. Palliative treatment embraces inoperable cases as well as operable. These cases frequently go back into the hands of the internist or general practitioner.

ARTHUR E. MARK, Hollywood.

Another Gas Hazard—Methanol, or methyl alcohol, was until recently produced by the destructive distillation of wood. It is now manufactured in large amounts from water gas and hydrogen ($\text{CO}-\text{H}_2-\text{H}_2-\text{CH}_4\text{O}$) at a low cost. One of the uses for which methanol is well adapted in all respects except one is in the anti-freeze mixture in automobile radiators. This unfortunate exception to its good qualities consists in the fact that methanol is a volatile cumulative poison. When taken in frequently repeated small doses, methanol induces blindness; in larger doses, whether by the stomach or by the lungs, it may cause death.

As the coefficient of distribution of methanol between water, or blood, and air is high, by far the greater part of any quantity of methanol that reaches the lungs is absorbed. Unlike ethyl alcohol, methanol is not burned in the body to any considerable degree, and its excretion through the breath and the urine is extremely slow. The toxic dose is not large and is easily reached even when the amount absorbed daily is too small to induce a noticeable initial effect. Contrary to the claims that would minimize its dangers, methanol is quite as poisonous when inhaled into the lungs as when taken into the stomach. Erroneous also is the assertion that, as the synthetic product is almost pure methanol, it is less toxic than the somewhat impure product obtained by the older method of manufacture. The fact is that in any preparation of methanol, pure or impure, the chief toxic substance is the methanol itself.

If, as now seems probable, methanol is widely sold for use in automobiles during the coming winter, and if precautions and warning in regard to the dangers of inhaling its fumes from heated automobile radiators is not instituted, it is highly probable that many cases of blindness will result, and probably also fatalities.—Editorial, *Journal of the American Medical Association*, August 30, 1930.

Radio Talks on the History of Medicine by Haggard of Yale.—Dr. Howard W. Haggard, associate professor of applied physiology, Yale University, is about to begin a series of weekly radio talks to be known as "Devils, Drugs and Doctors."

These talks started Sunday, January 25, and will continue for a period of at least a year.

The purpose of this series is to acquaint the public with some of the high points in medical and dental history, and with the most recent contributions to the science of health preservation. The ethical standing of these talks is assured by the position that Doctor Haggard enjoys in the profession.

The topics for January and February are as follows:

Sunday, February 1—History of Anesthesia.
 Sunday, February 8—Crusaders Against Pain.
 Sunday, February 15—Fashions in the Making.
 Sunday, February 22—Medical Logic.

The following Columbia Broadcasting Stations will carry these talks:

Salt Lake City, KDYL (6 to 6:15, mountain time).
 Los Angeles, KHJ (5 to 5:15 p. m., Pacific standard time).

San Francisco, KFRC (5 to 5:15 p. m., Pacific standard time).

STATE MEDICAL ASSOCIATIONS

CALIFORNIA MEDICAL ASSOCIATION*

LYELL C. KINNEY President
JUNIUS B. HARRIS President-Elect
EMMA W. POPE Secretary

OFFICIAL NOTICE

Nineteen Thirty-One Annual Session Headquarters

Fairmont Hotel—Headquarters for the next annual session, to be held at San Francisco April 27 to 30, 1931, will be the Fairmont Hotel.

The Fairmont has quoted the following rates for rooms, all with baths:

Single rooms, opening on large inner court, \$4.
Double rooms, opening on large inner court, \$6.
Single outside rooms with city and marine view, \$6.
Double outside rooms with city and marine view, \$8.
Double outside rooms with city and marine view, \$10.
You are advised to make your reservations now.

COMPONENT COUNTY SOCIETIES

FRESNO COUNTY

The regular meeting of the Fresno County Medical Society was held in the Californian Hotel January 6.

It was moved by Dr. G. W. Walker, seconded by Doctor James, that the society reconsider the withdrawal of periodical subscriptions and have the Library Committee study this and render a report to the society. Motion carried.

An invitation was made by Doctor Trowbridge to the society to use the University-Sequoia Club for its regular meetings at any time desired.

Dr. G. W. Pierce of San Francisco presented a scientific paper upon plastic surgery and then demonstrated motion pictures showing cases and surgical technique. His paper and demonstrations dealt particularly with tubular skin grafts, methods of transplantation, and repairs of defects of the face and palate, and the ultimate results. The paper was instructive, and many minor but important technical points were brought out and demonstrated.

E. R. SCARBORO, *Secretary.*

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NAPA COUNTY

The regular monthly meeting of the Napa County Medical Society was held Wednesday, December 10, 1930, at Marino's Grill, Napa.

Dr. George I. Dawson, president, opened the meeting. Routine business was conducted.

The Committee on Public Policy and Legislation was selected as follows: W. L. Blodgett, Calistoga, chairman; D. H. Murray and G. I. Dawson, Napa.

Dr. M. M. Booth of St. Helena was selected to act as a member on Medical Economics.

No special program for the evening was provided, but a round-table discussion of subjects interesting to members was carried on.

Those present were: Doctors W. L. Blodgett and Edward Love, Calistoga; H. R. Coleman, G. I. Dawson, C. A. Johnson, D. W. Murray, and R. S. Northrop, Napa; E. H. Donnelley, Imola; George H. Rue, Koera.

*For a complete list of general offices, of standing committees, of section officers, and of executive officers of the component county societies, see index references on the front cover, under Miscellany.

The regular monthly meeting of the Napa County Medical Society, preceded by a dinner, was held Wednesday, January 7, at Marino's Grill, Napa, Dr. Robert S. Northrop, president, in the chair.

Several communications were read.

The application for membership of Dr. E. F. Anderson, St. Helena, was unanimously accepted.

The speaker of the evening, Dr. W. H. Kellogg, director of the State Hygienic Laboratory, spoke most interestingly on public health problems as related to the general practitioner. He also discussed communicable diseases, especially smallpox, and stressed the importance of vaccination, especially in children. During the discussion that followed, it was brought out that in Scotland all children must be vaccinated before the age of six months. The medical society went on record as heartily endorsing the early vaccination of children.

It was the opinion of members present that some action should be started relative to the medical broadcasting over the radio, and that the secretary be so instructed to communicate with the state secretary concerning the subject.

Members present: Doctors H. V. Baker, H. R. Coleman, G. I. Dawson, C. A. Johnson, D. H. Murray, R. S. Northrop, and John Robertson, Napa; A. E. Chappell and E. H. Donnelley, Imola; C. E. Nelson and H. V. Vollmer, St. Helena Sanitarium.

Visitors present: Dr. W. H. Kellogg and Doctor Sweigert, intern at Napa State Hospital.

C. A. JOHNSON, *Secretary.*

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ORANGE COUNTY

Members of the Orange County Medical Association celebrated the annual meeting of this society on Tuesday, January 13, at the Santa Ana Country Club. The annual dinner is a combined social and scientific event for members and their wives and guests.

Entertainment during the dinner was furnished by a trio composed of Ollimae Enlow Matthews, violin; Edward Gros Bayne, cello; and Franz Darvas, piano.

Later in the evening Mrs. Matthews and Mr. Bayne each contributed solos to the program, with Mr. Darvas at the piano. Dr. Bessie Stokes Martell presided as toastmistress, introducing Dr. H. M. Robertson of Santa Ana who served the association as president during the past year.

"Taking an Inventory" was the subject chosen by Dr. Robertson for his excellent address in which he pointed out the necessity for such a move on the part of medical associations in general—national, state, and county—as well as for the individual physician, as a means of progress in the profession and of weeding out those things which are of no value.

M. B. Wellington, guest speaker, chose "Doctors" as his theme, discussing the subject from a layman's point of view.

Varying the program of music and addresses was a cleverly enacted one-act play in which Ernest Crozier Phillips of the Santa Ana Junior College drama department presented three young men of the student body—Eugene Olsen, Robert DeuPree, and Dean Wright. The special lighting effects for the play were controlled by Ray Archer.

Doctor Martell's final duty as toastmistress was the presentation for installation of the new officers: Emerald Steen of Fullerton, president; J. Luther Maroon of Santa Ana, vice-president; Harry G. Huffman of Santa Ana, secretary-treasurer; C. D. Ball, librarian; G. M. Tralle, Dexter R. Ball, and J. L. Beebe, councilors; H. E. Zaiser and D. R. Ball, delegates.

HARRY G. HUFFMAN, *Secretary.*

SACRAMENTO COUNTY

At the first meeting of the board of directors of the Sacramento Society for Medical Improvement, which was held last Tuesday, Philip G. Young was chosen as president of the society for the year 1931. At the annual meeting on December 16, the following members were elected to act as the board of directors: Doctors Edward Babcock, Orin S. Cook, Paul Christman, A. K. Dunlap, Frank MacDonald, Hans Schluter, Philip G. Young, Harold Zimmerman. Franklin Warne Lee was reelected to the post of secretary for the year 1931. Gustave Wilson was elected a delegate for two years, and E. W. Beach as alternate for two years.

FRANKLIN WARNE LEE, *Secretary*.

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SAN DIEGO COUNTY

Dr. Joseph C. Aub, associate professor of medicine at Harvard Medical School, spoke before the San Diego Academy of Medicine on December 8, 1930, on "The Role of Inorganic Salts in Internal Medicine."

Dr. P. J. Hanzlik, professor of pharmacology at Stanford Medical School, gave lectures before the academy on December 18 and 19: (1) Intravenous Therapy. (2) Bismuth Compounds in Antisyphilitic Therapy.

Dr. James W. Sherrill, director of the Scripps Metabolic Clinic, La Jolla, has issued the names of lecturers for 1931. Mr. Milton McRae and Mr. J. C. Harper have financed these lectures and a dinner for the members of the San Diego County Medical Society and many other medical men all over southern California. Mr. McRae died a few months ago, and Miss Ellen Scripps and Mr. Harper carry on.

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SAN JOAQUIN COUNTY

The annual meeting of the San Joaquin County Medical Society was held Thursday, December 4, 1930, at 6:30 p. m. at the Stockton Golf and Country Club. Thirty-eight members and eight guests attended. During the course of the dinner, which preceded the business meeting, music was furnished by Miss Lucy Bruch on the violin, accompanied by Mrs. Jeanette Rose.

At the conclusion of the dinner the meeting was called to order, and the secretary read the minutes of the previous meeting, which were duly approved.

An annual report was presented and read by the secretary-treasurer, which stood approved.

At this time the president announced the result of the election of officers for 1931 as follows: G. H. Rohrbacher, president; George H. Sanderson, first vice-president; R. T. McGurk, second vice-president; C. A. Broadbuss, secretary-treasurer.

Board of directors: F. J. Conzelmann, J. W. Barnes, H. S. Chapman, Dewey R. Powell, C. V. Thompson, John J. Sippy, and R. T. McGurk.

State delegates: J. W. Barnes and B. J. Powell.

Alternates: G. H. Rohrbacher and Margaret Smythe.

Admission Committee—C. F. English (chairman), J. D. Dameron, L. Dozier, J. F. Doughty, and J. E. Nelson.

Ethics Committee—Hudson Smythe (chairman), J. W. Barnes, B. J. Powell, George H. Sanderson, and D. R. Powell.

Finance Committee—J. D. Dameron (chairman), J. V. Craviotto, and H. S. Chapman.

Program Committee—George H. Sanderson (chairman), P. B. Gallegos, and T. L. Sutton.

Dr. Barton J. Powell, Jr., was received into membership by the president.

The following guests were present: Doctors Harry E. Alderson and Stuart C. Way of San Francisco, the speakers of the evening; Doctors Haggerty and

Vanderleek from the State Hospital; Doctors Kyddson and Thompson, Miss Lucy Bruch, and Mrs. Jeannette Rose.

Doctor Kaplan then reviewed some of the work of the past year and extended thanks to the members in general for their cooperation during the past year, and to several members in particular.

The members present were: Doctors D. R. Powell, B. F. Powell, Sr., B. F. Powell, Jr., Barnes, Margaret Smythe, McGurk, Blackmun, Davison, Goodman, Sutton, Sippy, Boehmer, C. V. Thompson, Bollinger, Chapman, Barbour, McNeil, Doughty, Smithers, English, Hudson Smythe, Craviotto, Pinney, Dozier, Latta, Priestley, Powers, Hull, Sheldon, Tretheway, Haight, Hanson, Sanderson, Van Meter, Gallegos, Kaplan, Broadbuss, and Rohrbacher.

Dr. Harry E. Alderson and Dr. Stuart C. Way presented the paper of the evening, illustrated by moving pictures of skin lesions from the skin and syphilis clinic of Stanford University Medical School.

One of the interesting features of the evening were the replies of the speakers to a long series of questions put to the two doctors by members.

A vote of thanks was given the speakers and musicians.

C. A. BROADBUSS, *Secretary*.

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SANTA BARBARA COUNTY

The annual banquet meeting of the Santa Barbara County Medical Society was held at El Paso Tea Room on January 12, with President Hugh Freidell presiding.

There were present fifty-five members and nineteen visitors.

The members and guests gathered at 6:30 and promptly at 7 sat down to the banquet table, at which time President Freidell turned the gavel over to Dr. H. J. Profant as chairman of the Entertainment Committee. Doctor Profant then introduced Greenough's Orchestra, which provided wonderful music during the dinner. Songs were distributed to the membership and were sung under the leadership of Doctor Profant. Then followed fancy dancing by a local girl, Miss Doris Smith. The toastmaster then called on the following members for either a funny story or their one big moment: Doctors Nuzum, Engelbach, Jones, Hunt, Hamilton, Ullmann, Mellinger, Coblenz, and Bakewell. The judges were Doctors Luton and Roome, who awarded first prize to Doctor Engelbach and second to Doctor Coblenz.

At the conclusion of the stunts, Doctor Freidell introduced Dr. Pan Codellas of San Francisco, who gave us a very interesting and instructive talk on the development of medicine, reciting the history of medicine and tracing its origin back to four thousand years before Christ, telling of the discoveries of case histories on clay bricks of the ancient Egyptians and on tiles of the ancient Pharaohs, and from them on up to the time of the Greeks and Romans.

At the conclusion of this talk Doctor Codellas was given a rising vote of thanks in appreciation.

The meeting then went into executive session and the minutes of the last annual meeting were read and approved. The financial report of the secretary was read and ordered filed.

The applications of Doctors Cruden and Grandstaff were read and, upon balloting, they were unanimously elected into membership.

The following officers were then elected for the ensuing year: H. J. Ullmann, president; Hilmar O. Koefod, vice-president; W. H. Eaton, secretary; O. C. Jones of Santa Maria, first vice-president at large; H. G. Hanz of Solvang, second vice-president at large.

Doctor Markthaler then reported for the Public Relations Committee and read the minutes of the meeting of January 9, together with a letter from Doctor Coblenz of Santa Maria and a proposed medical service contract of the county.

It was then moved, seconded and unanimously carried, that the following motion adopted by the Public Relations Committee be adopted by the Santa Barbara County Medical Society and be incorporated in the minutes of this meeting:

"1. That no member of the Santa Barbara County Medical Society enter into any such agreement with the Santa Barbara County Board of Supervisors for professional services, as proposed in the enclosed plan, without the approval of the society.

"2. That no member of the Santa Barbara County Medical Society enter into any agreement with any organization or like group for professional services without the expressed approval of the society.

"3. That any member acting contrary to these recommendations be automatically suspended from the county society."*

The following committees were appointed for the ensuing year:

Board of Censors—R. F. Atsatt, C. T. Roome, and Milton Geyman.

Program Committee—H. O. Koefod, W. D. San-sum, and Milton Geyman.

Committee for Revision of Constitution and By-Laws—P. C. Means and W. H. Eaton.

Public Relationship Committee—J. B. Manning, W. E. Johnson, H. E. Henderson, E. L. Markthaler, and O. C. Jones.

County Welfare Board—H. E. Henderson and Hugh Freidell.

WILLIAM H. EATON, *Secretary*.

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SANTA CLARA COUNTY

The December meeting was called to order on December 12 in the auditorium of the San Jose Medico-Dental Building. After various business matters were disposed of, Dr. Dudley P. Fagerstrom, secretary of the society, presented a very interesting dramatization of "Some Famous Characters in Medical History." The following talented members of the society were each costumed to impersonate an important departed medico who returned for an earthly visit at this meeting: Dr. John Hunt Shephard—Hippocrates; Dr. Helen Lee—Madame Tortula of Salerno; Dr. Peter A. Jordan—William Harvey; Dr. Stanley Kneeshaw—Ambrose Paré; Dr. M. W. Kapp—The Nineteenth Century Practitioner. Modern medical practice was then represented in a travesty, "An Interview of a Modern-Day Detail Man for a Pharmaceutical House Manufacturing Endocrine Gland Products." Dr. Samuel Staub gave a clever, humorous portrayal of the detail man, and was ably assisted by some local pharmacists. Some delightful music under the direction of Dr. Charles M. Richards was interspersed in the program and greatly appreciated by the large number of members who attended.

The following new members were admitted to the society: Dr. Margaret Lamson of Palo Alto, Dr. Bertha Shedd Mason, Dr. Newell L. Moore, Dr. Paul T. Pace of San Jose, and Dr. E. W. Mullen of Agnew.

The application for membership of the following doctors were referred to the Admission Committee: Dr. John J. Bourn and Dr. Anthony J. Monty.

The memberships of Dr. Russel V. Lee and Dr. Herlwyn R. Green, both of Palo Alto, were transferred from the San Francisco County Society. An application from Dr. Joseph P. Schell for transfer of membership from the Butte County Medical Society was referred to the Admission Committee.

Dr. R. A. Whiffen, who has retired from active practice, tendered his resignation to the society. This, however, was not accepted, and it was moved, recorded and unanimously carried, that he be invited to become a retired member in lieu of his resignation.

LUCAS W. EMPEY, *Assistant Secretary*.

SONOMA COUNTY

The regular meeting of the Sonoma County Medical Society was held on December 18, 1930, at the Occidental Hotel, Santa Rosa. Dinner preceded the meeting with the Woman's Auxiliary.

The meeting was called to order by Dr. Chester Marsh, president, at 8 p. m.

Dr. Paul T. Quarry gave a very interesting talk on his observations at some of the eastern clinics.

The following officers were elected: A. Morse Bowles, president; J. Leslie Spear, vice-president; T. Hubert Reiss, secretary; Clifford M. Carlson, treasurer; Chester Marsh of Sebastopol, delegate; H. Walter Seawell of Healdsburg, alternate.

Censor Stuart Z. Peoples is to serve to December 31, 1933.

A vote of thanks was given the retiring officers for the efficient and successful manner in which they had performed their duties.

J. LESLIE SPEAR, *Secretary*.

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VENTURA COUNTY

The January meeting of the Ventura County Medical Society was held Tuesday, January 13. The meeting was called to order by President Wright at 8 p. m.

Those present were: Doctors Achenbach, Felberbaum, Hendricks, Rhymes, Bianchi, Shore, Welch, Wright, Mosher, Armitstead, Smolt, Patton, W. S. Clark, Broughton, Jones, and Illick.

A very interesting scientific program was presented by Dr. J. V. Barrow, there being two subjects on the program. The first was an illustrated lecture on "Intestinal Protozoa," which was very interesting and was enjoyed by all. Doctor Barrow also delivered a paper on "The Business of Medicine." Considerable discussion followed the papers.

R. B. ARMITSTEAD, *Secretary*.

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YOLO-COLUSA-GLENN COUNTIES

The Yolo-Colusa-Glenn County Medical Society, after partaking of a dinner at the Woodland Hotel, adjourned to the Woodland Clinic where it was called to order by President Bell.

The following physicians were present: Doctors Cooper, Pulford, F. Fairchild, C. Fairchild, Bell, McBride, McNeil, Tillotson, Railsback, Gray, J. Lawson, F. M. Lawson, Blevens, Brown, Browning, Penwell, Keith, Poage, Rathburn, Huntley, Ward, Desrosier, Scott, Bates, and George H. Sanderson and A. L. Van Meter of Stockton.

Several communications were then read and placed on file.

It was moved, seconded and carried, that Dr. Ney Salter, who is now in the Letterman Hospital, San Francisco, be made an honorary member of this society until such time as he may resume practice.

The president appointed Mrs. F. R. Fairchild and Mrs. Frank M. Lawson as a committee to form a Woman's Auxiliary.

The society then proceeded to the election of officers with the following results:

Thomas H. Brown of Orland was elected president; William T. Rathburn of Colusa, vice-president; W. E. Bates of Davis, secretary-treasurer; Oscar C. Railsback, delegate to the state convention; and T. E. Cooper as alternate.

The scientific program of the evening, a symposium on fractures, was then opened by Doctor McNeil of the Woodland Clinic. Discussion was opened by Dr. Fred R. Fairchild. All fractures and their treatment and results were illustrated by slides. The first considered was fractures of the clavicle, then fractures of the head and shaft of humerus, then of the elbow, next in order were fractures of the forearm and wrist, then the spine and hip.

Different forms of apparatus were shown for the setting and holding of the different fractures.

W. E. BATES, *Secretary-Treasurer*.

*Regarding the cause for these resolutions, see also editorial comment in this number of California and Western Medicine, page 121.

CHANGES IN MEMBERSHIP

New Members

Napa County—David Bruce Williams.

San Diego County—Edward R. Cox.

San Francisco County—Francis Scott Smyth.

Santa Barbara County—Alexander W. Cruden, Floyd L. Grandstaff.

Ventura County—Lester Harold Rhymes.

Transferred

Benjamin F. Cunningham, from Los Angeles to San Luis Obispo County.

Elmo Alexander, from Sacramento to Stanislaus County.

James E. McCue, from Lassen-Plumas to Stanislaus County.

Deaths

Crowley, Dennis David. Died at Oakland December 28, 1930, age 72 years. Graduate of Bennett Medical College, Chicago, 1879, and the University of Illinois College of Medicine, Chicago, 1885. Licensed in California, 1886. Doctor Crowley was a member of the Alameda County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

Falk, Curtis Oliver. Died October 19, 1930, age 54 years. Graduate of Cooper Medical College, San Francisco, 1897. Licensed in California, 1898. Doctor Falk was a member of the Humboldt County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

Zieber, William Harvey. Died November 19, 1930, age 68 years. Graduate of College of Physicians and Surgeons, Keokuk, Iowa, 1890. Licensed in California, 1922. Doctor Zieber was a member of the Santa Clara County Medical Society, the California Medical Association, and the American Medical Association.

OBITUARY

William Leland Mitchell, M. D.
1893-1930

The following extract from the *Weekly Bulletin of the California Department of Public Health*, December 6, 1930, explains why the local community was depressed when the painful news arrived that Doctor Mitchell was dead. Apparently he was a robust individual, fit for any hazard, yet he died in the line of duty.

"Many Californians who knew Dr. W. Leland Mitchell, formerly health officer of Orange County, will be shocked to learn of his death, which occurred recently in Budapest, Hungary. Doctor Mitchell, since leaving California in 1925, had been with the International Health Board and had been stationed in Paris and in Budapest. Only last year, he had taken a year of special study at the Johns Hopkins University School of Public Health."

Doctor Mitchell died after a short illness on November 21, 1930, of a heart affection, complicated by an attack of bronchopneumonia.

He was born in Staunton, Illinois, July 5, 1893, and was of Colonial ancestry. He was educated at the University of Illinois and received his degree from Washington University, St. Louis, Missouri, in 1918. His fraternities were the Phi Delta Theta and Nu Sigma Nu. Doctor Mitchell served as first lieutenant, Medical Corps, United States Army, in France in 1918-1919, with the American Red Cross in Poland in 1920-1922, and with the Rockefeller Foundation in 1922-1926.

He came to Orange County in 1922, representing the Rockefeller Foundation, was health officer of Orange County in 1923-1924. Doctor Mitchell joined the Orange County Medical Association in 1924. He was a member of the California Medical Association

and a Fellow of the American Medical Association. On September 16, 1929, Doctor Mitchell married Marie Madeline de Szikszay of Budapest.

He did yeoman service for mankind in France, Poland, and Hungary—service that cost him his life. It is fitting that his medical society honor his memory.

C. D. BALL, M. D., Librarian.

THE WOMAN'S AUXILIARY OF THE CALIFORNIA MEDICAL ASSOCIATION*

The Woman's Auxiliary to the American Medical Association Progress Notes

According to the constitution of the national auxiliary the first vice-president is automatically chairman of organization, the three other vice-presidents being organizers for their section of the country. Mrs. Southgate Leigh of Virginia, therefore, holds this chairmanship, and the eastern district is her particular responsibility. At her request a series of four articles is being prepared by her committee in order that each district may be cognizant of the progress of its own state's as well as those of the other three sections. The individual state journals have been generous in the extreme in the space they have allowed their auxiliaries, and this additional courtesy of reporting the auxiliary situation in other states is deeply appreciated, for there is a growing desire to know "what others are doing."

New Hampshire stands alone as the only New England state 100 per cent organized and cooperating with the national organization. Last year the state auxiliary had misgivings as to its necessity and usefulness, but an urgent request from the medical society that the women remain organized dispelled all doubts. During the year following, Mrs. Hubbard, wife of the state president, visited every county, which encouraged and stimulated the growth of unit auxiliaries.

The New Jersey Auxiliary made pilgrimages to state institutions, set apart one meeting when the mothers of physicians were entertained, and sponsored various health meetings. The Essex County Auxiliary, assisted by the physicians, succeeded in establishing a course of health talks, in cooperation with the Y. W. C. A. of Newark, emphasizing especially prenatal care and information which would aid the mothers of babies and young children. Last year Mrs. James Hunter, Jr., New Jersey's state president, visited every county, as did Mrs. Walter Jackson Freeman in Pennsylvania, during her presidency. One cannot help drawing the conclusion that personal contacts are necessary for county development and success.

Virginia is active in spots. The doctors encourage the auxiliaries, as they believe that through them education with regard to the menace of state medicine can be spread.

Ohio for several years has been sending representatives from a few organized counties to the national meetings, but as yet there is no state organization. As our friend and adviser, Doctor Upham, lives in Ohio, it is felt that he will advise the national auxiliary when the auspicious time arrives for the establishment of a state auxiliary.

The District of Columbia seems so completely diverted with Washington affairs that the auxiliary which so capably cared for the American Medical Association meetings some years back seems to have gone into retirement.

*As county auxiliaries to the Woman's Auxiliary of the California Medical Association are formed, the names of officers should be forwarded to the state secretary-treasurer, Mrs. Dexter R. Ball, 2419 Bonnie Brae Street, Santa Ana, and to the California Medical Association office, Room 2004, 450 Sutter Street, San Francisco. Brief reports of county auxiliary meetings will be welcomed for publication in this column.

Delaware, in a breathless, better-late-than-never manner, has completely caught up and is most interested and active, and has entered upon serious work by assisting the men of the profession in establishing a medical library in Wilmington. They will cooperate with Philadelphia at the time of the American Medical Association, and the eastern section will introduce them with pride to the national organization. West Virginia is up and doing, and you may expect still better things from that state this year.

Maine, Massachusetts, Rhode Island, Vermont, and Maryland have reported the interest of individuals, but no organized effort. Queries from different localities in New York as to why there is no auxiliary have been answered with the statement that several years ago the House of Delegates voted unanimously in favor of the auxiliary and authorized its organization. The same year Connecticut voted favorably, but no definite steps have been taken.

Pennsylvania has surely discovered the rhythm in which its auxiliary work is best done, for concrete accomplishments have been turned out regularly, year by year. Of the \$3000 contributed last year to the Medical Benevolence Fund more than two-thirds was contributed by the auxiliary. A definite trend toward educational meetings is felt all over the state and, socially, it is hoped that the carefully formed Philadelphia plans for the next meeting will bring honor and glory to the Keystone State. Not only are the adult members of the auxiliary meeting, but a group of the most charming and good-looking daughters of doctors are working together in order that they may know each other and work in unison for the comfort and pleasure of the American Medical Association guests when they come to Philadelphia in May. Verily, who can question the wisdom of the auxiliary, when it brings about so much willing work in behalf of the medical men of the country?

(MRS.) W. WAYNE BABCOCK,
Organizing Chairman of Eastern District.

Contra Costa County Auxiliary

The auxiliary to the Contra Costa County Medical Society was formed one year ago January 14, 1930, at the home of Mrs. J. M. McCullough of Crockett. There were eleven charter members. Since that time it has grown to twenty-one members.

We feel the auxiliary has created a better bond of fellowship among the men and lasting friendships among the women.

It has given the women enlightenment and interest in the work of their husbands.

It has given the doctor much needed rest and recreation in the midst of his serious scientific meetings.

We have placed BETTER HEALTH magazines in the High School and Junior High Schools of Richmond, and we hope to put the magazines into every school in the county.

HELEN WEIL, Secretary-Treasurer.

NEVADA STATE MEDICAL ASSOCIATION

W. A. SHAW.....	President
R. P. ROANTREE, Elko.....	President-Elect
H. W. SAWYER, Fallon.....	First Vice-President
E. E. HAMER, Carson City.....	Second Vice-President
HORACE J. BROWN.....	Secretary-Treasurer
R. P. ROANTREE, D. A. TURNER,	
S. K. MORRISON.....	Trustees

COMPONENT COUNTY SOCIETIES

WASHOE COUNTY

The Washoe County Medical Society met Tuesday night in the State Building, Reno, Doctor Creveling, president, presiding. The minutes of the last meeting were read, corrected and approved.

Dr. J. L. Robinson made a report on the pending transfer of the Nevada State Laboratory to the Nevada State Board of Health. Inasmuch as the report of the committee was not complete and their work not finished the committee was continued. Doctor Robinson also made a partial report as to the progress of the new Community Hospital and stated that it was the desire of the committee in charge to float, on the instalment plan, sufficient bond issues to erect the hospital, upon which work would start, presumably, in the coming spring.

Doctor Bath read a communication from the American Medical Association from the Council on Medical Education and Hospitals, under date of December 17, 1930. This communication spoke of a bill before Congress for an appropriation of \$52,000,000 to erect additional veteran hospitals. One of the provisions of the bill was to provide additional hospital facilities at government expense for veterans regardless of whether their sickness or injury was of service origin or not. This bill was discussed by the members present. The secretary made a motion, which was seconded and carried, that this society approve of all needful aid for veterans such as the erection of hospitals and extension of medical and surgical care to all veterans whose ailments were of service origin and to all indigent veterans whose ailments were or were not of service origin. But to include among those receiving gratuitous service veterans whose disabilities were not of service origin and who were financially able to pay for any needful surgical or medical service could not be looked upon in any other light than that of gross injustice to practicing physicians and surgeons of the country at large, who whether they were in the service or not, have done their part to sustain the revenues of the government.

The society directed the secretary to prepare a symposium on all the phases usually met with in the treatment of pneumonia. The symposium should be composed of about eight essayists, each presenting his views in a five-minute paper.

Dr. George R. Smith of the Nevada State Hospital for Mental Disease read a paper which had been prepared by Dr. P. F. Schneider of Evanston, Illinois, on a "Hormone Test for the Diagnosis of Early Pregnancy." The following is the gist of the paper:

"The diagnosis of early pregnancy and its differentiation from other pelvic conditions can at present be accomplished with a considerable degree of accuracy by means of the Aschheim-Zondek test. This test is based on the fact, first, that large amounts of the hormone of the anterior pituitary body are excreted in the urine during pregnancy, and second, that when urine containing this hormone is injected into immature mice, ovulation occurs.

"As outlined by Aschheim, the procedure necessitates the use of five or six immature female mice, three weeks of age, for each experiment. Varying quantities of urine are injected into each mouse, three times daily, over a period of two days. Autopsy is done one hundred hours after the first injection, and the presence of corpora lutea and corpora hemorrhagica give positive evidence of pregnancy in the patient from whom the urine was obtained. In a report of one thousand cases Aschheim demonstrated 98.2 per cent accuracy, and stated that in the cases where accurate results were not obtained in the first test, subsequent tests gave results which were later substantiated.

"Friedman, in his work on ovulation in the rabbit, demonstrated that intravenous injection of five cubic centimeters of urine from a pregnant woman provoked ovulation in the same manner as in the mouse, the advantages being that ovulation occurs within twenty-four hours, either because of the injection of a single large amount directly into the blood stream, or because of the sexual peculiarities of the rabbit. Friedman injected eighteen rabbits with urine from pregnant women and obtained positive results in each instance. Fourteen rabbits, each injected with urine from nonpregnant women, all gave negative results. This work increased the value of the test by mate-

rially decreasing the time element, simplifying the technique, and apparently maintaining as great a degree of accuracy as that obtained by Aschheim and Zondek.

"Enumeration of the factors involved in this test will in a measure explain the technique which has been developed. The rabbit does not as a rule copulate or go into heat until the age of five months during the summer, and six to eight months during the winter (Hammond and Marshall). The rabbit has no regular cycle, does not ovulate unless it copulates, and following copulation, ovulation occurs in eight to ten hours (Friedman). By using rabbits not over twelve to fourteen weeks of age, the possibility of ovulation from other causes than the injection of the hormone is reduced to a minimum. We have found that when rabbits under three months of age are used the results are not constant, and are of little value."

Doctor Weldon, recently from Mobile, followed with the most excellent paper on "Toxemias of Pregnancy." His paper dealt with the complete pathological history of these cases such as would be exhibited by blood chemistry correlated by urine chemistry and the usual clinical manifestations. In summing up his paper the doctor concluded that every enceinte woman should receive prenatal care and the treatment could be summed up in his final dictum—be clean and keep clean. The paper was excellent in its scope, and was discussed by a number of those present.

Nineteen members were present.

THOMAS W. BATH, *Secretary*.

UTAH STATE MEDICAL ASSOCIATION

WILLIAM L. RICH, Salt Lake City.....President
R. A. PEARCE, Brigham City.....President-Elect
M. M. CRITCHLOW, Salt Lake City.....Secretary
J. U. GIESY, 701 Medical Arts Building,
Salt Lake City.....Associate Editor for Utah

COMPONENT COUNTY SOCIETIES

BOX ELDER COUNTY

The Box Elder County Medical Society held its meeting in conjunction with members of the Cache Valley and Weber County Medical Societies on November 11 in order to meet the state officers. Short talks were given by each of the officers. The main paper was given by Dr. William Bender of San Francisco, California, on "Anterior Poliomyelitis and Encephalitis." He emphasized the point of the late epidemic being chiefly an upper nervous system infection and the early and prolonged rest of the affected part in the treatment.

Officers for the following year were elected as follows: L. D. Mahannah, president; C. E. Wardleigh, vice-president; R. A. Pearce, secretary-treasurer; O. D. Luke, delegate.

Doctor Luke was also appointed as auxiliary member on public policy.

L. D. MAHANNAH, *Secretary*.

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SALT LAKE COUNTY

The regular semi-annual business meeting of the Salt Lake County Medical Society was held at the Newhouse Hotel Monday, December 8, 1930.

The meeting was convened at 8:15 p. m. by President M. M. Nielson. Fifty members were present.

The secretary's report was read and, upon the motion of M. M. Critchlow, was accepted and filed.

In the treasurer's report Clark Young recommended revision of the system of bookkeeping and combining the offices of secretary and treasurer.

After discussions of the recommendation by C. M. Benedict, W. F. Beer, J. Z. Brown, and G. A. Cochran, upon the motion of W. F. Beer the report was accepted and filed.

There were no reports for the Committees on Public Health and Legislation, Medico-Legal, and Boy Scouts. The report of the Special Committee on the Fee Schedule was postponed until the next meeting.

The report of the Necrology Committee, J. U. Giesy, chairman, upon a motion of Clark Young was accepted and filed.

W. R. Tyndale, chairman, reported for the Library Committee. O. J. La Barge moved that the report be accepted and filed. Motion seconded and carried.

The report of the Public Lectures Committee, A. L. Huether, chairman, was read by the secretary. E. M. Neher moved that the report be accepted and filed. Motion seconded and carried.

R. T. Woolsey, chairman, reported for the Telephone Directory Committee, and upon a motion of B. I. Burns this report was accepted and filed.

E. M. Neher reported for the Committee on Medical Economics. This report, which was the result of extensive study of credit conditions in Salt Lake County, was of such interest that Fred Stauffer moved that this subject be made the object of discussion at some future executive session. The motion was seconded and carried.

D. G. Edmunds, chairman, reporting on the Committee on Law Enforcement, cited the recent activities of the Board of Registration regarding the irregular medical practices by certain druggists, physicians, and quasi-medical practitioners. Upon a motion of C. M. Benedict the report was accepted and filed. R. R. Hampton moved that the secretary be instructed to send a letter of commendation and appreciation to the department of registration with an offer to cooperate in every possible way in the completion of this work. Motion seconded and carried.

M. M. Nielson reported for the Program Committee and delivered his address as retiring president. F. Stauffer moved that the report of the Program Committee be accepted, and that the following resolution, drawn up by this committee, be adopted:

Whereas, It is not the purpose of the Salt Lake County Medical Society to assist in the exploitation of manufacturers; and

Whereas, The Salt Lake County Medical Society feels that it may avoid complicated situations if no precedent is set; therefore be it

Resolved, That this society go on record as holding in disfavor addresses in official session by representatives of commercial houses, unless official sanction is given by the entire society.

This resolution was seconded and carried.

In his presidential address, M. M. Nielson reviewed the progress made during the year, mentioning especially that the Radium Corporation kindly donated to the society \$600 to be used in helping to defray the expenses of the medical library; also the introduction of a directory of all members in good standing of the Salt Lake County Medical Society on the inside of the front cover of the telephone directory. He also suggested that this society should prepare a letter to be sent to all the various civic and religious organizations informing them that the society would be happy to furnish competent speakers on subjects pertaining to health, and that an educational article for the laity be published weekly in the local press.

The following constitutional amendment was passed: A scientist holding a doctor's degree is eligible for associate membership provided he resides in Salt Lake County. Such an associate member shall pay the regular dues, but shall not be entitled to vote or to hold office; but shall be elected to membership in the same manner in which a regular member is elected.

The society then proceeded to elect officers for the ensuing year, 1931. The following officers were

elected: F. M. McHugh, president; E. M. Neher, vice-president; B. E. Bonar, secretary; C. R. Cornwall, treasurer; and S. G. Kahn, censor.

C. J. Pearsall and J. Z. Brown escorted F. M. McHugh to the president's chair. He made a few remarks regarding the ancestors of members of this society, and stated that he hoped that during the ensuing year that the members of the society would help to keep the laity well informed of what the medical profession has done and is doing.

R. M. Tandowsky moved that the society extend a vote of thanks to the outgoing officers for their past year's work. Motion seconded and carried.

The meeting was adjourned at 10:45 o'clock, after which refreshments were served.

BARNET E. BONAR, *Secretary*.

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UTAH COUNTY

The regular meeting of the Utah County Medical Society was held at the Hotel Roberts, Wednesday evening, December 10, 1930.

The following members were present: Doctors Merrill, Oaks, Robison, Hagan, Hasler, R. G. Clark, J. R. Anderson, J. W. Aird, and J. L. Aird.

Dr. Charles Johnson of Salt Lake City, professor in the department of physiology and pharmacology, gave a very interesting paper of his original research work on "The Pharmacological and Toxic Effects of Sodium Nitroprussid." Doctor Johnson's work was all done in animal experimentation, and has shown that the cyanogen group in nitroprussid is relatively inert, that the nitrite group gives the same blood pressure lowering effect as the other nitrites.

Following this splendid paper, Doctor Oakes moved that Doctor Johnson be given a vote of thanks by the society for visiting us and delivering this paper. This was seconded, and passed unanimously.

No business was transacted.

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A meeting of the Utah County Medical Society was held on December 17 in order to meet with the state association officers and to elect society officers for the year of 1931.

President Rich, Secretary-Treasurer Critchlow and Doctor Brown from Salt Lake City and Doctor Pearce from Brigham City were present. Each gave a talk pertaining to the state and national medical association affairs. They made special reference to the increasing numbers of malpractice suits, and gave as the remedy for better protection a closer association of doctors in their local medical society and better coöperation with each other in their work.

The officers for the year 1931 were nominated and elected unanimously as follows: A. B. Robison, president; J. Karl Beck, vice-president; Charles M. Smith, secretary-treasurer.

The election of delegates and alternates was postponed until next year.

A motion was passed that the president appoint a man or a committee to represent the Utah County Society in the state association's Committee on Policy and Public Relations.

The following members were present: Doctors C. M. Smith, Worlton, Grua, Houston, Neill, J. W. Aird, J. L. Aird, and Hasler. Doctors Oaks, Cullimore and Robison came in, following the dinner.

J. L. AIRD, *Secretary*.

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WEBER COUNTY

The regular annual banquet and meeting of the Weber County Medical Society was held December, 18, 1930, in the Hotel Bigelow. It was attended by the state society president, Dr. William Rich, Secretary M. M. Critchlow, and President-elect R. A. Pearse of Brigham City; Councilmen Morton, John

Brown, and E. R. Dumke; James P. Kerby, chairman of the Committee on Medical Legislation.

Dr. E. P. Mills of the local society gave an interesting travelogue of his trip abroad.

CONRAD H. JENSEN, *Secretary*.

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UTAH NEWS

Arrangements are being made by the Utah Medical Association to go on the air in the near future. Numerous men throughout the state have been asked to write brief papers on timely subjects for broadcasting in five-minute talks for public education. The subjects will be handled in a general way and no treatment recommended or suggested, but a sincere effort made to instruct the public in the nature of disease and its prevention through hygiene and such means as vaccination. A broadcasting team is being organized in Salt Lake, and it is already assured of much material from local men of the state and from the American Medical Association, through the co-operation of Dr. John M. Dodson, who is prepared to furnish them with clip sheets from *Hygeia* for use in their programs.

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The State of Utah has taken a great step in advance in coming into the list of states where definite provision is made for the training and care of its feeble-minded. The 1929 legislature appropriated \$300,000 for the purpose of acquiring a site and starting the construction of the Utah State Training School. A site of approximately five hundred acres has been acquired at American Fork, thirty miles south of Salt Lake, in the very center of the state's population, and contracts have been awarded for the construction of the main buildings to accommodate a population of approximately two hundred. Actual construction work will be started during the winter, and the school completed for occupancy by July 1931. The present legislature is being asked to make a further appropriation to equip these buildings and to complete other buildings necessary to put the school in full operation. It is estimated that the State of Utah has five hundred cases of feeble-minded persons, capable of receiving training and requiring institutional care.

An extensive study has been made of other institutions and this school has been planned under the direction of the late Dr. George L. Wallace of the Wrentham School, Dr. T. J. Allen of the Vermont State School, Dr. D. O. Calder of Hollywood, California, and Dr. James Lewald of the St. Louis Training School, and it is expected that the institution when completed will represent the most advanced ideas in construction and operation in this field. Up to this time there never has been an institution in Utah nor any definite plan for the care and training of the feeble-minded, and the board of trustees are now seeking a superintendent who is qualified to handle this school and at the same time handle additional work along this line throughout the state.

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Immunization from diphtheria and smallpox was given to almost twelve hundred pupils of the Alpine, Provo, and Nebo school districts during the past two months, according to a report from Mrs. Evalina Reed, nurse of the Utah County health unit.

The report indicated that 519 pupils were inoculated for diphtheria in the Nebo district, 397 in the Alpine, and 271 in the Provo school district. It was also reported that 478 students were vaccinated for smallpox in the Nebo district, 438 in the Alpine, and 206 in the Provo district.

The doctors that assisted in the work were: F. D. Worlton, V. F. Houston, J. F. Noyes, Guy S. Richards, O. E. Grua, Stanley Clark, Garn Clark, Cecil Clark, Fred Taylor, Albert Taylor, C. M. Smith, Arnold Robinson, Walter T. Hasler, J. L. Aird, George Anderson, Glen Neill, John Anderson, Joseph Hughes, L. D. Stewart, A. E. Callahan and B. C. Linebaugh.

MISCELLANY

Items for the News column must be furnished by the twentieth of the preceding month. Under this department are grouped: News; Medical Economics; Correspondence; Department of Public Health; California Board of Medical Examiners; and Twenty-five Years Ago. For Book Reviews, see index on the front cover, under Miscellany.

NEWS

Lane Lectures.—The Stanford University School of Medicine has announced the forty-ninth course of popular medical lectures which will be given at Lane Hall, north side of Sacramento Street, near Webster, on alternate Friday evenings, 8 o'clock sharp. All interested are cordially invited to attend.

On Friday evening, February 20, 1931, "Minor Pelvic Ailments of Women" will be the subject of Dr. Ludwig A. Emge's talk.

"Past and Present Concepts in Oriental Medicine," by Emile Holman, M.D., will be given on Friday, March 6, and on March 20, "Indigestion, Its Meaning and Management," will be discussed by Arthur L. Bloomfield, M.D.

Public Health Exhibits at County Fairs.—At the 1929 American Medical Association conference of state medical society secretaries and editors, a most interesting paper on "Public Activities of the Nebraska State Medical Association was read by Dr. E. R. Hays, secretary of the Nebraska association. The paper was printed in the *American Medical Association Bulletin* of January 1930. The editor of CALIFORNIA AND WESTERN MEDICINE was so impressed with what Nebraska had been able to accomplish in its public health education that the Council of the California Medical Association allocated funds for a beginning of similar work in California. The editor also secured a list of California fairs with their approximate dates of opening and closing. This list of fairs is here printed for the information of component county societies and of members who are interested. The standing Committee on Health and Public Instruction is making a further study of the Nebraska plan, and it is hoped that a beginning can be made in county fair public health exhibits during the current year.

The data concerning California fairs follows:

Meeting of American College of Surgeons, California-Nevada Section.—The California-Nevada Section of the American College of Surgeons holds its next annual meeting in Oakland, April 24 and 25. The Committee on Arrangements, composed of the Alameda County members of the college, met and organized recently, electing Dr. O. D. Hamlin, chairman; Dr. Charles A. Dukes, secretary, and Dr. George G. Reinle, treasurer.

In addition to the members of the college, the whole medical profession of the states of California and Nevada are especially invited, as the session will be of extreme interest to all. The program committee has arranged for clinics at the various local hospitals for the visiting men, and in addition to the regular scientific discussion, has planned for a great meeting for the general public at which men of prominence in public health and preventive medicine will speak.

"Medical Center" Adopted as Name for University of California Group of Professional Schools.—At a meeting of the deans of the professional colleges and the director of Hooper Foundation for Medical Research of the University of California, it was voted to apply the term "Medical Center" to the schools, colleges, and research centers considered collectively. The group has been known as the "Affiliated Colleges," although the medical school, the college of dentistry, the college of pharmacy and Hooper Foundation have been integral parts of the University of California for many years and the name itself officially abandoned. The term "Medical Center" was considered appropriate for the group because the University Hospital receives cases from all parts of the state, the out-patient department offers treatment to patients from practically every county in the state; the college of dentistry clinic furnishes dental work to needy individuals for about the cost of materials, and Hooper Foundation for Medical Research and the pathology department of the medical school are coöperating with public health agencies and physicians everywhere. In addition, the Medical Center is now taking steps to protect California from tropi-

California Fair Dates (Tentative)

Name of Fair	Secretary	Dates Held	Place Held
Imperial County Fair		Feb. 25 to March 2	Imperial
Bells of Solano Exposition	D. A. Weil	May 24 to June 1	Fairfield
San Leandro Cherry Festival	N. W. Armstrong	June 2 to 7	San Leandro
California Sweet Pea Show	Fred S. McCarger	June 10 to 11	Salinas
California Rodeo	Fred S. McCarger	July 16 to 20	Salinas
Hillmar Community Fair	A. W. Caldwell	Aug. 6 to 7	Hillmar
Santa Barbara County Fair	J. H. Chambers	Aug. 12 to 16	Santa Maria
San Joaquin County Fair	Ed G. Vollman	Aug. 18 to 26	Stockton
California State Fair	Chas. W. Paine	Aug. 30 to Sept. 7	Sacramento
Glenn County Fair	E. A. Kirk	Sept. 9 to 14	Orland
Fresno District Fair	Trefle LaSenay	Sept. 9 to 14	Fresno
Merced County Fair	R. Casad	Sept. 10 to 13	Merced
Los Angeles County Fair	C. B. Afferbaugh	Sept. 12 to 21	Pomona
Tulare County Fair	Harry W. Perry	Sept. 16 to 20	Tulare
Southern California Fair	Cecelia G. Gravens	Sept. 23 to 28	Riverside
Kern County Fair	L. B. Nourse	Sept. 23 to 28	Bakersfield
Siskiyou County Fair	R. O. Gwyn	Sept. 26 to 28	Yreka
Orange County Fair	H. A. Lake	Sept. 30 to Oct. 5	Santa Ana
Ventura County Fair	W. G. Wilde	Oct. 1 to 5	Ventura
San Diego County Fair	Felix Landis	Oct. 7 to 11	San Diego
Pacific Slope Dairy Show		Nov. 8 to 15	Oakland

cal and oriental diseases which might be brought in through the development of world commerce.

Appointments to Committee on the Costs of Medical Care.—Dr. John M. T. Finney of Baltimore, professor of clinical surgery in the medical school of Johns Hopkins University, and Dr. David Riesman of Philadelphia, professor of clinical medicine in the medical school of the University of Pennsylvania and physician to the Philadelphia General and University Hospitals, have been appointed consultants to the Committee on the Cost of Medical Care. Doctor Finney and Doctor Riesman join Dr. Roger I. Lee, consultant in internal medicine, of Brookline, Massachusetts, as consultants of the committee.

Lecture at University of California Medical School.—On Tuesday, February 24, at 12 noon, Professor Jules Duesberg of the University of Lieze, Belgium, will lecture on "How Belgium is Trying to Develop Research." Members of the faculty, students and all interested are invited to attend.

New California Directors of Public Health.—Drs. Porter of Los Angeles and Sabichi of Bakersfield Appointed by Governor Rolph.—A news dispatch in the Los Angeles Times of date of January 27, is as follows:

Sacramento, January 27 (AP).—Governor Rolph today announced appointment of Dr. Giles S. Porter of Los Angeles as director of the State Department of Public Health, to succeed Dr. Walter M. Dickie, resigned.

Dr. George C. Sabichi, Bakersfield, was appointed assistant director and chief of the division of epidemiology, which handles communicable disease work.

Both Doctors Porter and Sabichi, the Governor said, were highly recommended to him by Doctors George Parrish and William C. Hassler, health officers of Los Angeles and San Francisco, respectively. Doctor Sabichi succeeds Dr. Jacques S. Gray, Santa Rosa, who resigned some time ago.

American Board of Obstetrics and Gynecology.—The American Board of Obstetrics and Gynecology, composed of nine members and examiners, elected by the American Association of Obstetricians, Gynecologists and Abdominal Surgeons, the American Gynecological Society, and the Section on Obstetrics, Gynecology and Abdominal Surgery of the American Medical Association, was formally organized in Niagara Falls, September 16, 1930. The function of the board is to grant certificates indicating proficiency and specialization in obstetrics or gynecology, or both, to those who comply with its requirements. This board has been in the process of organization since 1927. It puts into action a determined effort on the part of these three national organizations to improve the standards of practice of obstetrics and gynecology. The board does not intend in any way to interfere with or limit the professional activities of any duly licensed physician, but it does aim toward standardized qualifications for specialists in obstetrics and gynecology. Any well qualified obstetrician and gynecologist should have no difficulty in obtaining a certificate and the board is desirous of receiving applications from those to whom this applies. The first examination for candidates will be held simultaneously in nineteen different cities of this country and Canada on Saturday, March 14, 1931. Detailed information and application blanks may be secured from Dr. Paul Titus, secretary, 1015 Highland Building, Pittsburgh, Pennsylvania.

American College of Physicians.—The fifteenth annual clinical session of the American College of Physicians will convene in Baltimore, Maryland, March 23-27, and in Washington, D. C., March 28, 1931. Held in important medical centers, these clinical sessions constitute, perhaps, the most important post-graduate week in internal medicine each year. Those

who attend the meeting will find ample in the way of clinical, laboratory, research and historical interest, well to repay them for the time spent in making the journey.

The entire program of the clinical session is characterized by new subjects, new authors and wide geographic representation.

Hotel headquarters will be at the Lord Baltimore Hotel, while general headquarters, at which the registration of members, commercial exhibits and all general sessions will be held, will be the Alcazar, Cathedral and Madison streets, Baltimore. Transportation on the certificate plan of reduced fares will be available to all physicians and dependent members of their family from all parts of the United States and Canada.

Mr. E. R. Loveland, 133-135 South Thirty-sixth Street, Philadelphia, is the executive secretary of the college, and it is to him that requests for further information or programs should be addressed.

New Psychiatric Directory.—In 1928, the second edition of the *Directory of Psychiatric Clinics for Children in the United States*, was published. This directory included, in addition to a list of clinics offering psychiatric service for children, a brief description of any psychiatric services conducted by state departments, a list of state hospitals and institutions for mental cases, and a statement of the activities of state and local societies for mental hygiene. In addition to what was obtained in 1928, material will be gathered relative to psychiatric clinics for adults.

The success of this compilation depends largely on the coöperation and assistance of the directors of psychiatric clinics.

All neurological, neuropsychiatric and psychiatric clinics accepting psychiatric cases for psychiatric study and treatment should be included in this directory. Information from anyone regarding any clinic not included in the last directory will be greatly appreciated, together with any other suggestions as to ways in which the directory may be made more useful. Address information to George S. Stevenson, M. D., Director Division on Community Clinics, the National Committee for Mental Hygiene.

MUCH IN LITTLE*

Esteem the counsel of elders—their wisdom is of experience.

Elders use laboratory findings for all they are worth.

Keep a card index—then you will know "the kind of medicine I gave you last time."

Cleanse your hands, thermometer and hypodermic in the presence of the patient.

Treat no complaint with levity or the complainer will feel hurt. Many trifling ailments become serious.

Throw away none of your colleague's medicines when called to a patient he has been treating, or the patient will think less of you.

Do not promise a recovery. Always be a guarantor of service.

A prognosis of death and the patient lives,

His friends will forget and forgive.

They never forget you though they may forgive,

When he dies and you said he'd live.

*Members of the California, Nevada and Utah Medical Associations are invited to contribute to this column of aphorisms, which will appear from time to time in California and Western Medicine, as sufficient copy accumulates. The aphorisms in this issue were sent in by John William Shuman, M. D., Los Angeles.

MEDICO-LEGAL

A COUNTY SOCIETY EXPULSION COMPLICATION

On a Suit for Slander.—The following interesting news items appeared in the daily press, as coming over the Associated Press wires. Some members who perused the revised constitution and by-laws of the California Medical Association may have wondered why the sections dealing with complaints of an ethical nature against members of component county societies were so explicitly drawn. That was done in an effort to prevent the unpleasant consequences which can sometimes result if accepted and fundamental legal procedures are not properly observed when a physician is on trial before his fellows on a charge of unethical conduct. The editor does not know the details of the Spokane case. The press dispatches are here reprinted so that all county society members and officers who have or who assume responsibilities in these matters may be reminded to be alert to the legal and other phases of such questions and problems in ethics, in case such problems in ethics should come before them. All component county societies are obligated to observe the requirements laid down by the parent state association. County society by-laws which do not include the safeguards laid down in the state association constitution and by-laws should be amended to conform therewith.

The news dispatches follow:

Excerpt from San Francisco Examiner, January 4, 1931:

Doctor Wins \$30,000 Damages for Ouster

Spokane (Wash.), January 4.—(AP).—Dr. W. W. Robinson, who was expelled from the Spokane County Medical Association, was awarded \$30,000 tonight by a jury which heard his suit against ten Spokane physicians whom he accused of conspiracy to slander.

Excerpt from San Francisco Call, January 6, 1931:

Doctor Wins Suit for \$30,000 Aimed at Other Medicos

Spokane (Wash.), January 6, (AP).—Ten doctors ordered to pay \$30,000 to Dr. W. W. Robinson for "slandering and humiliating" him by expelling him from the Spokane County Medical Society will appeal the case, it was made known today by their counsel.

A jury verdict gave the award to Robinson, who had sued for \$60,000. He has a libel suit for \$30,000 pending against Dr. Charles S. Ward and Dr. Carroll Smith for publishing charges against Robinson in a medical journal.

The case began with a malpractice suit, Robinson contended, in which he testified against a doctor who performed improperly an operation on a girl. Robinson said this "set the doctors against him."

INCOME TAX REPORTS OF PHYSICIANS

Income Tax Reports.—Income tax reports are something which must be made out by the great majority of members of the California, Nevada, and Utah Medical Associations. Inasmuch as exemptions allowed by the federal government are of a somewhat technical nature, and because mistakes are apt to cause financial loss, it seems proper to again print a digest of the general rulings which apply to physician citizens.

The taxpayer who is required to make a return must do so on or before March 15, unless an extension of time for filing the return has been granted. For cause shown, the collector of internal revenue for the district in which the taxpayer files his return may grant such an extension, on application filed with him by the taxpayer. This

application must contain a full recital of the causes for the delay. Failure to make a return may subject the taxpayer to a penalty of 25 per cent of the amount of the tax due.

The normal rate of tax on individual citizens or residents of the United States, under the Revenue Act of 1928, is 1.5 per cent on the first \$4000 of net income in excess of the exemptions and credits, 3 per cent on the next \$4000, and 5 per cent on the remainder.

WHO MUST FILE RETURNS

1. Returns must be filed by every person having a gross income of \$5000 or more, regardless of the amount of his net income on his marital status. If the aggregate gross income of husband and wife, living together, was \$5000 or more, they must file a joint return or separate returns, regardless of the amounts of their joint or individual net incomes.

2. If gross income was less than \$5000, returns must be filed (a) by every unmarried person, and by every person married but not living with husband or wife, whose net income was \$1500 or more, and (b) by every married person, living with husband or wife, whose net income was \$3500 or more. If the aggregate net income of husband and wife, living together, was \$3500 or more, each may make a return or both unite in a joint return.

If the marital status of a taxpayer changed during the tax year, the amount of income necessary to bring him within the class required to make returns should be ascertained by inquiry of the local collector of internal revenue.

As a matter of courtesy only, blanks for returns are sent to taxpayers by the collectors of internal revenue, without request. Failure to receive a blank does not excuse anyone from making a return; the taxpayer should obtain one from the local collector of internal revenue.

The following discussion covers matters relating specifically to the physician. Full information concerning questions of general interest may be obtained from the official return blank or from the collectors of internal revenue.

GROSS AND NET INCOMES—WHAT THEY ARE

Gross Income.—A physician's gross income is the total amount of money received by him during the year from professional work, regardless of the time when the services were rendered for which the money was paid, plus such money as he has received as profits from investments and speculation, and as compensation and profits from other sources.

Net Income.—Certain professional expenses and the expenses of carrying on any enterprise in which the physician may be engaged for gain may be subtracted as "deductions" from the gross income, to determine the net income on which the tax is to be paid. An "exemption" is allowed, the amount depending on the taxpayer's marital status during the tax year, as stated before. These matters are fully covered in the instructions on the tax return blanks.

Earned Income.—In view of the credit of 25 per cent allowed on earned net income, the physician should state accurately the amount of such income as distinguished from his receipts from other sources. Earned income means professional fees, salaries and wages received as compensation for personal services rendered. From this, in the computation of the tax, must be subtracted certain "earned income deductions." The difference is the "earned net income."

A physician may include as "earned" income money paid by patients who were looked after in part by his assistants. In order to do so, however, the patients on whose account the money was paid must have been in fact the patients of the physician-taxpayer and have looked to him as responsible for the services performed. Moreover, the services must have been performed under the physician-taxpayer's supervision.

The first \$5000 of an individual's net income from all sources may be claimed, without proof, to be earned net income, whether it was or was not in fact earned within the meaning set forth in the preceding paragraph. Net income in excess of \$5000 may be claimed as earned if it in fact comes within that category. However, a taxpayer may not claim, as earned, net income in excess of \$30,000.

The conditions relating to the computation of the tax on earned income are too elaborate to be stated here. In case of doubt, physicians should consult collectors of internal revenue.

DEDUCTIONS FOR PROFESSIONAL EXPENSES

A physician is entitled to deduct all current expenses necessary in carrying on his practice. The following statement shows what such deductible expenses are and how they are to be computed:

Office Rent.—Office rent is deductible. If a physician rents an office for professional purposes alone, the entire rent may be deducted. If he rents a building or apartment for use as a residence as well as for office purposes, he may deduct a part of the rental fairly proportionate

to the amount of space used for professional purposes. If the physician occasionally sees a patient in his dwelling house or apartment, he may not, however, deduct any part of the rent of such house or apartment as professional expense; to entitle him to such a deduction he must have an office there, with regular office hours. If a physician owns the building in which his office is located, he cannot charge himself with "rent" and deduct the amount so charged.

Office Maintenance.—Expenditures for office maintenance, as for heating, lighting, telephone service and the services of attendants, are deductible.

Supplies.—Payments for supplies for professional use are deductible. Supplies may be fairly described as articles consumed in the using; for instance, dressings, clinical thermometers, drugs and chemicals. Professional journals may be classified as supplies, and the subscription price deducted. Amounts currently expended for books, furniture and professional instruments and equipment, "the useful life of which is short," may be deducted; but if such articles have a more or less permanent value, their purchase price is a capital expenditure and is not deductible.

Equipment.—Equipment comprises property of more or less permanent value. It may ultimately be used up, deteriorate or become obsolete, but it is not in the ordinary sense of the word "consumed in the using"; rather, it wears out.

Payments for equipment or nonexpendable property for professional use cannot be deducted. As property of this class may be named automobiles, office furniture, medical, surgical and laboratory equipment of permanent value, and instruments and appliances constituting a part of the physician's professional outfit and to be used over a considerable period of time. Books of more or less permanent value are regarded as equipment, and the purchase price is therefore not deductible.

Although payments for equipment or nonexpendable articles cannot be deducted, yet from year to year there may be charged off against them reasonable amounts as depreciation. The amounts so charged off should be sufficient only to cover the lessened value of such property through obsolescence, ordinary wear and tear, or accidental injury. If improvement to offset obsolescence and wear and tear or injury has been made, and deduction for the cost claimed elsewhere in the return, claim should not be made for depreciation.

A hard and fast rule cannot be laid down as to the amount deductible each year as depreciation. Everything depends on the nature and extent of the property and on the use to which it is put. Five per cent a year has been suggested as a fair amount for depreciation on an ordinary medical library. Depreciation on an automobile would obviously be much greater. The proper allowance for depreciation of any property is that amount which should be set aside for the tax year in accordance with a reasonably consistent plan, not necessarily at a uniform rate, whereby the aggregate of the amounts so set aside, plus the salvage value, will at the end of the useful life of the property in the business equal the purchase price of the property or, if purchased before March 1913, its estimated value as of that date or its original cost, whichever may be the greater. The physician must in good faith use his best judgment and make such allowance for depreciation as the facts justify. Physicians who, from year to year, claim deductions for depreciation on nonexpendable property will do well to make annual inventories, as of January 1, each year.

Medical Dues.—Dues paid to societies of a strictly professional character are deductible. Dues paid to social organizations, even though their membership is limited to physicians, are personal expenses and not deductible.

Postgraduate Study.—The Commissioner of Internal Revenue holds that the expense of postgraduate study is not deductible.

Traveling Expenses.—Traveling expenses, including amounts paid for transportation, meals and lodging, necessarily incurred in professional visits to patients and in attending medical meetings for a professional purpose, are deductible.

AUTOMOBILES

Payment for an automobile is a payment for permanent equipment, and is not deductible. The cost of operation and repair, and loss through depreciation, are deductible. The cost of operation and repair includes the cost of gasoline, oil, tires, insurance, repairs, garage rental (when the garage is not owned by the physician), chauffeurs' wages, etc.

Deductible loss through depreciation is the actual diminution in value resulting from obsolescence and use, and from accidental injury against which the physician is not insured. If depreciation is computed on the basis of the average loss during a series of years, the series must extend over the entire estimated life of the car, not merely over the period in which the car is in the possession of the present taxpayer.

If the automobile is used for professional and also for personal purposes—as when used by the physician for recreation, or used by his family—only so much of the expense as arises out of the use for professional purposes

may be deducted. A physician doing an exclusive office practice and using his car merely to go to and from his office cannot deduct depreciation or operating expenses; he is regarded as using his car for his personal convenience and not as a means of gaining a livelihood.

What has been said with respect to automobiles applies with equal force to horses and vehicles and the equipment incident to their use.

MISCELLANEOUS

Laboratory Expenses.—The deductibility of the expenses of establishing and maintaining laboratories is determined by the same principles that determine the deductibility of other corresponding professional expenses. Laboratory rental and the expenses of laboratory equipment and supplies and of laboratory assistants are deductible when under corresponding circumstances they would be deductible if they related to a physician's office.

Losses by Fire, etc.—Loss of and damage to a physician's equipment by fire, theft or other cause, not compensated by insurance or otherwise recoverable, may be computed as a business expense, and is deductible, provided evidence of such loss or damage can be produced. Such loss or damage is deductible, however, only to the extent to which it has not been made good by repair and the cost of repair claimed as a deduction.

Insurance Premiums.—Premiums paid for insurance against professional losses are deductible. This includes insurance against damages for alleged malpractice, against liability for injuries by a physician's automobile while in use for professional purposes, and against loss from theft of professional equipment, and damage to or loss of professional equipment by fire or otherwise. Under professional equipment is to be included any automobile belonging to the physician and used for strictly professional purposes.

Expense in Defending Malpractice Suits.—Expenses incurred in the defense of a suit for malpractice are deductible as business expense. Expenses incurred in the defense of a criminal action, however, are not deductible.

Sale of Spectacles.—Oculists who furnish spectacles, etc., may charge as income money received from such sales and deduct as an expense the cost of the article sold. Entries on the physician's account books should in such cases show charges for services separate and apart from charges for spectacles, etc.—*Journal of the American Medical Association*, January 10, 1931.

* * *

Recent Decision on Community Property Reports.

A recent decision by the Supreme Court of the United States on California community tax reports may be of interest, in connection with the above. The clipping is from the *Los Angeles Herald*.

"San Francisco, January 19. — (AP).—The Supreme Court at Washington today handed down a decision permitting husbands and wives in California to file separate income tax returns. Attorneys for the Bureau of Internal Revenue here said, however, the decision would be of little or no benefit to any couple earning less than \$10,000 a year, net combined income, after exemptions.

"There will be some minor benefits to taxpayers who have combined net incomes of \$4000 a year or more, it was said, but those earning less will be in no way affected by today's decision.

"The normal income tax is graduated as follows: 1½ per cent on the first \$4000 after deduction of exemptions; 3 per cent on the next \$4000; 5 per cent on all over \$8000. The surtax begins at \$10,000 and is levied in addition to the normal income tax. It is graduated from 1 per cent on incomes from \$10,000 to \$15,000, up to 20 per cent on incomes of \$200,000 and more.

"As the taxable income of a married man earning up to \$7500 would be taxed only at 1½ per cent, he would gain nothing by submitting a divided return.

"For married men with incomes of \$10,000, however, the situation would be this:

OLD LAW

"As a married man he is entitled to an exemption of \$3500, and would thus have a taxable income of \$6500. Of this sum, \$4000 is taxable at 1½ per cent, or \$60, and the remaining \$2500 at 3 per cent, or \$75. From this total tax of \$135, he would be entitled to an "earned income credit" of \$5.62, leaving his tax payment \$129.38.

NEW LAW

"The man and wife would file separate returns of \$5000 each and each would deduct half of the total exemption of \$3500, or \$1750 each. This would leave each with a taxable income of \$3250 on which each would pay a tax of \$43.13, or a total of \$86.26, as compared with \$129.38 for the undivided return.

"In the case of a man with an income of \$15,000, the saving in taxes would be \$135.62, and the income would escape the surtax altogether."

PUBLIC HEALTH WORK

SOME EXCERPTS FROM THE REPORT OF THE HEALTH DEPARTMENT OF THE CITY OF LOS ANGELES

The growth which in recent years has taken place in some of the municipal, county, and state public health departments of the United States has been little less than remarkable. In California several examples of such special development may be observed. In a former number of *CALIFORNIA AND WESTERN MEDICINE*, editorial comment was made on the growth and scope of the Los Angeles County Health Department.

The annual report of the health department of the city of Los Angeles for the last fiscal year has just come off the press in the form of an eight by eleven inches, ninety-page booklet. The budget appropriation for this department for the last fiscal year was \$740,657 (salaries, \$615,987; expense, \$110,510; and equipment, \$14,160). For the information of readers of *CALIFORNIA AND WESTERN MEDICINE* who are interested, some excerpts are here reprinted.

* * *

The first quotation is from the report of the city health officer, Dr. George Parrish:

Finances:

"The questions of taxation and high cost of government are doubtless of paramount importance to most citizens. Particularly are these questions of outstanding importance to the citizens of the city of Los Angeles, for they are obliged to support two major governments—the city and the county.

"This should be stopped. Steps should immediately be taken either for a unified government of the entire county or the city should secede and extend its own border so as to form a county itself, embracing the greater part of that district now known as the metropolitan area. Such a move would save millions of dollars annually to the citizens of Los Angeles City and do away with friction, red tape, incompetency, overlapping and duplication.

"There is a complete dual government, but let us study the health departments.

"The citizens of Los Angeles under the present system of government are not only supporting their own city health agencies, but are contributing 60 cents on every dollar appropriated toward the maintenance of an expensive county health department. In other words, the city residents spend \$750,000 a year on their own health department and approximately an equal sum on the county health department, for the latter's budget is nearly twice as large as that of the city.

"At present the public is supporting two health officers, two sets of clerks, two sets of automobiles, two directors of tuberculosis, two chief sanitarians; two chief nurses, two chief quarantine inspectors, two main laboratories; they occupy two buildings and hold daily two complete sets of clinics.

"Unnecessary competition or rivalry frequently causes a great waste of funds. We have an example of this in our county where over \$500,000 has been spent within a few years for extravagant, expensive health centers.

"As a matter of fact, costly structures are not needed. The county has spent \$98,776 for a health center in Belvedere; \$55,000 in Compton; \$75,000 in Pomona; \$50,000 in San Fernando; \$80,000 in Santa Monica; \$100,000 in Alhambra, and many smaller sums. Los Angeles citizens contributed the major portion of the expense of these edifices, although they obtain no direct benefit.

"It is a fine thing for each small incorporated district to have situated on its main street a highly ornamental and expensive health building. The small town is to be congratulated on its wisdom, its foresight and its political sagacity, but it is a bad investment financially for everybody, but a good one politically. Health centers are necessary and do a fine work, when judiciously located and wisely managed. Unless great care is used, health centers easily and rapidly become branches of state medicine. They also may become financial burdens on a community.

"In Los Angeles City a much more economical, but equally effective method of reaching the people has been used. The function of a health department is prevention of disease and promotion of health. It is in the curative field only so far as it has to be—the hospitals are for that purpose. These facts are borne in mind throughout the city's program. Therefore, the city sees no excuse for the erection of showy health centers, furnished with costly equipment, necessitating an army of employees for their maintenance, in addition to a carrying charge of 9 per cent on the investment for interest, insurance, wear and tear.

"The city has twenty-four health centers conveniently located throughout the city. Six or eight-room bungalows are rented at \$50 a month which answer every purpose. These are nicely equipped. As population shifts, the lease expires and a new location is sought, for there is no top-heavy investment to prevent the health department following the poor. In pointing out these few economies, the city health department also wishes to emphasize some of its own weaknesses. It stands in need of improvement and better support. A central health department building is an immediate need. The use of the present building is but a makeshift and makeshifts are always expensive. Moreover, there is an urgent need for more personnel. Additional doctors are needed for a more vigorous toxin-antitoxin campaign to cut down the ravages of diphtheria; more conferences should be held to take care of the children; the volunteer physicians in the venereal clinics feel that they should receive some compensation. Some clerical help and a few additional nurses are necessary. Even with the additions, the per capita costs, now 59 cents, will still be far below that of all other large cities.

"The way to save money and do a bigger work is to consolidate. Combine all of the local health agencies and place them under one director. With practical management, the same standard as now maintained in the county and city could be continued and one-half million dollars annually saved to the taxpayers.

"I hereby respectfully submit the proposition for your consideration.

Educational Work:

"Through the medium of the press, bulletins and the radio, the department has kept the public well informed on all public activities and subjects which at the moment seemed to be of current interest. Through the courtesy of KMTR a broadcasting unit was installed in the office of the health officer. This has given us direct contact with the public and perhaps did much in the recent outbreak of infantile paralysis toward holding it to a minimum. The health commission and the health department are deeply thankful to the officials of KMTR. I also wish to take this occasion to thank the press boys in the City Hall for the generous support which they have on all occasions given to the health department. They have always been kind, courteous and reasonable, and without their assistance the health department could not have accomplished the work which it did.

"At the request of organizations, clubs, societies, schools and churches, the city health department was called upon to furnish many talks on public health of interest to these groups. Moreover, by means of divisional and generalized department gatherings, advanced lectures and instructions were imparted to the members of the department to insure their steady progress with modern advances in the field of public health.

"Transmitted herewith are the reports of the various divisions of the health department.

Respectfully submitted,

GEORGE PARRISH, M. D.,
Health Officer.

* * *

Other excerpts from the reports of several chiefs of bureaus are as follows:

Population:

"The census just closed gives Los Angeles a population of 1,231,830. It is a fact worthy of special mention that out of this vast multitude there were only 181 deaths from the twelve quarantinable diseases. This speaks in eloquent terms of the good results obtained from toxin-antitoxin, typhoid and smallpox vaccine, Pasteur treatments, and of the efficient work done by the quarantine division. In 1926 there were 200 deaths from smallpox, but in the four years since then, there has been only one such death, which followed close upon the heels of the 200. This record is directly traceable to the intensive vaccination campaign. . . .

"A few remarks in connection with a number of these diseases will help to throw some light on the problem involved in their control.

Smallpox Increasing:

"There were 164 cases of this disease in the city this year, which is a decided increase over last year, when there were twenty-nine cases. There were no deaths either this year or last year. The cases are mild for the most part, but now is the time to start a vaccination campaign, for smallpox, unless curbed, will increase in the number of cases yearly and end in a burst of deadly virulence as it did in 1926. At that time 200 persons lost their lives, not a single one of whom was protected by vaccination. No one needs to have smallpox. It is a problem of the health department to educate the people to know this, and to overcome their indolence and indifference. The health department vaccinates free of charge. Vaccination is far cheaper than smallpox, for the city as well as for the individual.

Measles Epidemic:

"Epidemics of measles usually occur every two years. For the fiscal year ending June 30, 1927, Los Angeles had 11,033 cases with forty-one deaths. Most of the cases, as usual, occurred during the spring months. For some unknown reason, our present epidemic was delayed almost a year. There were 6378 cases reported this year, with exactly the same number of deaths as in 1927—forty-one. A little more than half as many cases but a higher death rate in proportion. This disease is particularly deadly in infants. Those over five years of age nearly always recover. The death rate, however, does not tell the whole story by any means, for sequelae are of common occurrence and measles gives a foothold to many other diseases.

Undulant Fever:

"Six cases and no deaths as against eight cases, no deaths last year. A milk-borne disease here traceable in every instance to drinking raw milk from untested herds. There is no danger from pasteurized milk, and

all certified dairies in California test their cows regularly. Do not drink unpasteurized milk (raw milk) unless it be from a certified herd.

Poliomyelitis (Infantile Paralysis):

"The city has just passed through an epidemic of infantile paralysis. There were eighty-four cases in June, 158 cases in July, eighty-four cases in August and fifty-three cases in September. When this epidemic first broke out it gave every indication of being a heavy one, but fine cooperation on the part of the public did much to prevent its spread. The doctors of this city, especially the pediatricians, met at frequent intervals with the doctors of the health department and nothing was left undone in order that infantile paralysis might be held to a minimum. The members of the Council gave special assistance, appropriating \$2500, which was spent in obtaining blood in order that a serum might be made which would prevent others from being paralyzed.

"The health department issued thousands of letters and bulletins and radio broadcasts, warning the people and urging them to use caution. It gave the public a history of infantile paralysis and how it was spread and treated. It kept no facts from the people, told only the truth and told that in such a manner that no one was alarmed. Pressure was brought to bear upon the health department from many sources to hide the facts or tell only a half truth. There are many persons in this community who place a dollar ahead of a human life. Such persons have little regard for facts or truth. The results accomplished by the health department justified its every action.

Epidemic Meningitis Proves Deadly:

"Eighty-two cases occurred with fifty-one deaths; this is a 10 per cent higher death rate than last year when there were 109 cases with sixty-four deaths.

"This disease is a most deadly one and the anti-meningococcal serum has not been entirely satisfactory. Epidemic meningitis is caused by many different strains of meningococci and the serum does not always contain the proper antibodies. The United States Government is seeking by experimenting in its laboratories to make the remedy more efficient by adding more different strains, or key strains. The communicable disease staff of the General Hospital reports that over a short period of time using cisternal puncture and treatment, they have reduced the mortality rate in cases treated from about 57 per cent to 37 per cent. A great deal depends on early diagnosis and hospitalization. It would appear that this disease is fast becoming endemic, or, at least, has declared its intent to stay—taken out its first citizenship papers. It has been quite prevalent throughout the large cities of the country. As with other diseases hard to control, the difficulty lies with the large number of healthy carriers who themselves never become ill, but pass it onto the susceptible ones.

Psittacosis (Parrot Fever):

"The fiscal year 1929-1930 witnessed an outbreak throughout the United States of psittacosis. This strange and rare malady attacked a total of 169 persons in various parts of the country, with a loss of thirty-three lives. Incidence was between November 23, 1929, and May 7, 1930.

"Only six cases occurred within the city of Los Angeles. All recovered. The source of their infection was traced to a consignment of South American parrots arriving on the steamship Los Angeles at San Pedro Harbor, December 8, 1929. Three additional cases, traced to the same source, occurred among the passengers of the ship after it had left San Pedro Harbor for Honolulu. Two of these cases, both citizens of Los Angeles, died at Honolulu."

TWENTY-FIVE YEARS AGO*

EXCERPTS FROM OUR STATE MEDICAL JOURNAL

Vol. IV, No. 2, February 1906

From some editorial notes:

Silly Reports.—Anything to divert attention! For quite a while your JOURNAL, and its "lean and languid" (and many other adjectives!) editor, have been the recipients of comment, most of it far from complimentary, in a number of the "published-for-profit" journals. That was quite to be expected, so no particular attention has been paid to it, and the circulation and distribution of foolish statements or uncomplimentary remarks has gone right along. The last story to reach our attention is quite a new thing, however; it "takes a fall out of" the entire medical profession of the State of California. It is now going the rounds of the drug journals and doubtless, in time, will reach the pages of the "medical" journals. . . .

From a Report on "The Status of Organization Work in California" by J. W. McCormack, M.D., of Bowling Green, Kentucky:

I feel that the foregoing is a very imperfect and restricted description of local society conditions in California. I have described things as I saw them, but am convinced that what I have said gives a very inadequate conception of this great profession as a whole. For they have a great profession. Individually they are strong. Socially they are delightful. They are more prosperous financially than in any other section I have visited. But they are weak just where they need to be strong—in their county societies. In consequence, there has been little cohesion or unity of purpose, there has been no systematic or well-directed effort to secure the cooperation of the press and other educational agencies in creating and guiding public opinion in regard to medical and public health affairs, or to concentrate the influence of the profession itself upon proper legislation.

A system of local societies, composed of and uniting all of the reputable physicians in each county, meeting at short intervals and alive to, and in touch with, every proper and available power for good in their respective jurisdictions, are the only agencies through which these things can be done. In California better than in almost any other state all of the other machinery is about complete. They have a strong state society, and an able and fearlessly edited journal. . . .

From an article on "Some Remarks Concerning the Conservative Treatment of Severe Ocular Injuries" by Frank Allport, M.D., Chicago, Illinois:

It cannot be denied that many eyes are enucleated that by patience and skillful care might have been saved, and this course of ruthlessly sacrificing all eyes which are severely injured cannot be too strenuously deprecated. . . .

From an article on "Recent Complete Tears of the Perineum" by George B. Somers, M.D., San Francisco:

Injuries of the perineum are of interest to every physician who engages in general practice. They are very common and occur in the hands of even the most skillful obstetricians. When we consider the enormous number of children that are born into the world and the disproportion between the size of the unborn and the size of the canal through which nature forces them to travel, one wonders that injuries are not more common and more severe. . . .

* This column strives to mirror the work and aims of colleagues who bore the brunt of state society work some twenty-five years ago. It is hoped that such presentation will be of interest to both old and recent members.

From an article on "Mercurial Injections in Syphilis" by Howard Morrow, M.D., San Francisco:

It is generally admitted by clinicians that one large dose of mercury given hypodermatically has an action equal if not superior to pills of mercury given over a period of five or six days. The needle must be passed through the subcutaneous tissue into the muscle—the outer side of the gluteal region being the best location. If the needle and syringe are absolutely clean, and the skin sponged with alcohol, there is no danger of infection and large inflammatory areas are prevented by not giving injections at the same spot except after a lapse of a week or more. . . .

From an article on "Undrawn Poultry and Fish" by Franklin G. Fay, M.D., Sacramento.

The principal reason for introducing this subject for your consideration is the fact that toxicosis, resulting from partially decomposed foods, is so frequently encountered throughout the United States by the medical profession. This fact being accepted, it seems proper to endeavor to find the causes and remedy the evil. One cause may possibly be found in the manner in which undrawn poultry and fish are frequently placed on the market.

From Medical Society Reports:

San Francisco Society of Eye, Ear, Nose, and Throat Surgeons.—The president suggested that the society should discuss the advisability of total extirpation of the tonsils, saying: "Lately, at different meetings, the question of tonsil operations was discussed and many advocate the excision of every particle of tonsil. I myself, I must confess, have not quite made up my mind about it. What is a normal tonsil? When should we remove them and how much of them?"

Doctor Houston said that for the past year he had given up the use of the guillotine, the Myle's punch, etc., and limited himself to total extirpation of the gland with the cold wire snare. . . .

Doctor Cohn said that he could not thoroughly agree with Doctor Houston, and thought that the radical enucleation should be employed only in those cases in which the tonsils cannot be removed by any of the tonsillotomes, tonsil punches, etc. . . .

Doctor Merritt said that after operation in many of these cases there is a bit sticking out which cannot be removed with impunity for fear of taking too much. In hard and fibrous tonsils he was afraid of after-hemorrhage.

Doctor Philip does not send his tonsil patients to the hospital. He operates on the patient, where the crypts are filled with material, by removal piece by piece, the patient not losing any time from his work.

Doctor Welty divides the tonsil operations into two classes dependent upon the pathological condition. In the first class the tonsil is hypertrophied without involvement of the crypts and is not adherent to the pillars of the fauces. These tonsils can be thoroughly removed by the tonsillotome. The second class included those cases adherent to the pillars, and we operate to eliminate the crypts. Doctor Welty uses long-handled curved scissors, tonsillar forceps, blunt and sharp dissectors, and a large strabismus hook.

* * *

Alameda County Society.—The Alameda County Society held its regular monthly meeting on November 21. There was a large attendance of members who listened with the greatest interest to a discussion by Dr. Martin H. Fischer of some of the recent work on the physiology of digestion, dealing chiefly with the experimental work of Pawlow. . . .

The discussion of the paper chiefly took the form of questions, after which all present proceeded to the practical application of the subject, the committee on program having thoughtfully provided a supply of sandwiches and beer upon which the principles enunciated by the speaker could be immediately tested.

DEPARTMENT OF PUBLIC HEALTH

By W. M. DICKIE, *Director*

Departmental Reports.—Tuberculosis: The tuberculosis death rate has fallen from 127.7 per 100,000 population in 1925 to 106.3 in 1929. This is a reduction of almost 17 per cent. In 1906 the death rate for this disease was 235.7 per 100,000 population. The drop from this high rate to 106.3 per 100,000 in 1929 indicates the progress that has been made in tuberculosis control in California.

The Bureau of Tuberculosis of the State Department of Public Health has been active in raising the standards of care in county hospitals by means of the state subsidy to approved institutions, such funds being appropriated from the state treasury and allocated to the counties for expenditure.

Imported Tuberculosis: The problems related to the migration of tuberculosis cases in advanced stages to California, particularly to southern California, are very acute. This applies not only to migration from other states, but also to migration from Mexico. In 1928, 453 individuals, who had lived in California less than a year, died of tuberculosis, and 894 such deaths during that year occurred in individuals who had lived in California for periods varying from one to four years. About 20 per cent of all tuberculosis deaths in California are among Mexicans. Some of the counties of southern California are required to spend many thousands of dollars in the care and treatment of these foreign-born residents. If more satisfactory accomplishments in shutting off the tide of this immigration were made available, considerable might be accomplished in reducing the tuberculosis mortality rate of this state. It is doubtful if any other state in the Union makes such excellent efforts in the care and treatment of its indigent patients. This alone is an enormous factor in reducing the mortality rate. Continuation of this program will continue to lower the death rate of this disease still farther.

Water Supplies: The provision of adequate water supplies for large centers of population becomes more acute as the large cities grow with a speed that is nothing short of miraculous. Public water supplies in California are of the highest purity. Since surface streams are used largely, all public water supplies must be treated in order to make certain of their potability. The State Department of Public Health has stimulated activity among communities which draw their water supplies from surface sources. Not a single epidemic of water-borne typhoid has occurred within California since 1924.

Immunization Against the Infectious Diseases of Childhood.—The United States Public Health Service states that children should be vaccinated against smallpox before they are a year old. At this time they have not begun to run about and are in no danger of hitting the vaccination against hard objects or of getting dirt rubbed into it, and they are rendered immune practically from the start. On entering school they should be vaccinated again, for several reasons. In the first place, vaccination does not always protect for life; it requires reinforcement of the immunity in many individuals to make sure of protection against heavy exposures to smallpox. Fortunately, if the child already has an immunity, the new vaccination will not take. Instead, there will be merely a little red spot developing for only about a day, which is known as the "immune reaction."

We can now state also that diphtheria is an entirely preventable disease. Diphtheria antitoxin has

enormously diminished the death rate among those attacked by the disease. It is an almost certain cure if given very early during the attack; but there occurs altogether too frequently some delay in its administration, so that its beneficial possibilities are not realized. This delay may be due to negligence on the part of parents or hesitation on the part of the doctor, but the child patient too often pays for it with his life. Antitoxin does not cure or prevent the condition of "carrier." "Carriers" are people who, without being sick themselves, carry about the germs of diphtheria in their throats or noses and innocently distribute them among persons with whom they come in contact. Consequently, something new was needed in the fight against diphtheria, great though the advance had been. This was found in the toxin-antitoxin mixture, evidence which suggests that it is capable of immunizing for many years those to whom it is administered, possibly for the remainder of their lives. The newer preparation known as diphtheria toxoid is probably even better. Neither of these preparations, however, can be relied upon absolutely to immunize everyone to whom it is given; and the administration of either of them should always be followed by a Schick test to find out whether immunity is complete or not. If not, additional injections should be given. It cannot be too strongly recommended to parents that they have their children immunized against diphtheria by this means. It is believed possible in this way not only to check the prevalence of diphtheria, but after a time absolutely to eradicate it. In fact, several American communities have already practically reached this goal after persistent efforts to get every child in the city immunized. Naturally, this should be done at an early age. While it is better to do it when or after the child enters school than not at all, the preschool age is the period during which the greatest danger from diphtheria occurs, and it is advised that the injections be given as soon after the age of six months as possible.

Besides the two diseases which have been discussed, smallpox and diphtheria, there are several others against which it is possible to immunize children, but for one reason or another, it is not advised that every child be so immunized. Scarlet fever, for example, is nowadays so mild among us that health authorities seldom find it necessary to recommend wholesale immunization against it. The chief value of scarlet fever immunization is in institutions where the disease, if introduced, would be likely to spread rapidly through the entire susceptible personnel unless they were protected.

In the case of measles, again it is not advised that the whole child population of a community be immunized; but, for example, if one child in a family has contracted measles, it is often possible to protect the remaining children by the administration of immune serum.

Typhoid fever is now so well guarded against in most of our cities that it would be wasteful and unnecessary for everyone to take the typhoid vaccine. Typhoid vaccination, however, is an excellent protection for persons who travel about much in places where the practice of sanitation is not well developed.

With regard to rabies, frequently referred to as hydrophobia, children who have been exposed to the bites of mad dogs should consult a doctor as to the advisability of having the Pasteur treatment administered.

Health officials are so convinced of the need for universal immunization against both smallpox and diphtheria that they are doing everything possible to make it easily available, and facilities are extended in most of the health offices for the immunization of those who for one reason or another do not consult a private physician for such services.

CALIFORNIA BOARD OF MEDICAL EXAMINERS

By C. B. PINKHAM, M.D.
Secretary of the Board

The 1930 annual report of the Board of Medical Examiners recently submitted to the Governor, and which, as usual, will be published in full in the 1931 directory, shows that 644 applications of various classes were filed during the year and 552 certificates of all classes were issued:

Physicians and surgeons, after written examination.....	270
Commissioned medical officers.....	11
National board.....	13
Physicians and surgeons, reciprocity.....	219
Chiropody—Written examination.....	31
Chiropody—Reciprocity.....	3
Midwife—Written.....	5

The records of written examination show that 89 + per cent passed. Thirty-four states sent reciprocity applicants to us and thirty-six California licentiates sought registration in other states by reciprocity.

Thirty-six licentiates were called before the board on various charges, most of which were based on narcotic derelictions. The board's findings were as follows:

Guilty—Revoked.....	17
Guilty—Probation.....	6
Guilty—Suspended.....	3
Dismissed.....	3
Deferred to February 1931.....	7

The reports of the legal department, both north and south, show the usual activities, fines having been deposited with the state treasurer in the amount of \$3,643.50, with \$1650 still due the state treasurer from various counties.

Two hundred and thirty-nine licentiates passed to the Great Beyond.

The board's income was \$50,273.04 and the expenses were \$55,291.57 for the year.

The following licentiates of the Board of Medical Examiners have been cited to appear for legal hearing when the calendar is called at Independent Foresters Hall, 1329 South Hope Street, Los Angeles, at 10 a. m. February 3, 1931, to show cause why the license heretofore issued should not be revoked:

Assad Simon Abdun-Nur, M. D., Los Angeles.
Axiente S. Babienco, M. D., San Diego.
Roy Buffum, M. D., Long Beach.
Samuel D. Cotterell, M. D., Los Angeles.
Fay E. Cramer, M. D., Hawthorne.
Cecil R. Drader, M. D., Greenville.
Suzuno Eda, Midwife, Fresno.
Ernest Freeman, M. D., Fresno.
Charles M. Graham, M. D., Los Angeles.
Howard Hart, M. D., Los Angeles.
Walter W. Hopson, M. D., Los Angeles.
William I. Kingsley, M. D., San Diego.
David E. Matzke, M. D., Carmel.
Vincent Reno, M. D., New Jersey.
Victor Sheldon-Smith, M. D., Los Angeles.
Archie E. Williams, M. D., Long Beach.

"Allistro, the eminent mental scientist, will be among those absent from a matinee 'for ladies only—no one under 18 years of age admitted' at the Parkside Neighborhood Theater tomorrow. Allistro's absence from the matinee—and all other performances—will be enforced, for he pleaded guilty yesterday before Municipal Judge Theresa Meikle to violating the State Medical Act, was sentenced to six months in the county jail and won a suspended sentence when he promised to cancel his theatrical contracts . . ." (San Francisco Chronicle, January 15, 1931).

A. H. Bertie is reported to have pleaded guilty January 8, 1931, in Santa Barbara, to a charge of violation of the Medical Practice Act and sentenced to sixty days in the county jail, suspended for two years on condition of no further violation of the Medical Practice Act.

"Dr. Francis James Bold, Whittier physician, has appealed to the District Court of Appeal from an order of Superior Judge Leon R. Yankwich affirming the revocation by the State Board of Medical Examiners of his license to practice medicine in California . . ." (Whittier News, December 24, 1930).

"Public office is a public target for criticism published by citizens in good faith and for such privileged publication no recovery can be had under the California law for libel, Superior Judge Yankwich holds in an opinion just filed. It accompanies his decision that Bert A. Humason, former Chief Inspector of the State Board of Chiropractors, is not entitled to recover damages from the California Chiropractic Association and members by reason of articles published in the association's bulletin in May and September 1929. . . . The articles, though not true, were, therefore, privileged and for their publication the plaintiff cannot recover . . ." (Los Angeles Times, January 12, 1931).

"Gypsy Dan Chandler, so-called Main Street 'Medicine Man,' today prepared to appeal from a \$500 fine for assertedly practicing medicine without a license. He was sentenced late yesterday by Municipal Judge Charles L. Bogue after a jury found him guilty . . ." (Los Angeles Express, December 13, 1930).

"Dr. C. M. Graham of Inglewood is today cleared of violating the Federal Narcotic Act, according to the decision by Federal Judge George Cosgrove. No evidence was introduced to show that the doctor had violated the Act or had in any way acted in bad faith, Judge Cosgrove said . . ." (Los Angeles Record, January 9, 1931).

"Mexico City, December 13 (AP).—The Interior Department today issued orders forbidding American and other foreign physicians to practice in Mexico. The step has been taken to protect Mexican doctors from competition . . ." (Hollywood News, December 13, 1930).

"How radios played soft music as patients were massaged at the Reed Health Institute on South I Street, was brought out in Justice Court yesterday when the doctor, charged with burglary, exposed what he termed the inner workings of the establishment. Mysterious music, which apparently emanated from the electrical energy passing from doctor to patient during what Fred Reed called his 'treatment by radio waves,' Doctor Bates testified, caused the doctor to investigate by entering a room. . . . 'Music could be faintly heard when the patient lay on a table to which was connected an electrical plate after the circuit was completed by the masseur standing on another plate,' Doctor Bates explained to the court. 'When the person giving the electric massage would touch the person on the table, the radio connection was complete and the mysterious music could be heard . . .' " (San Bernardino Sun, January 6, 1931). (Previous entries, December 1928, page 432.)

"Kansas City, Kan., December 22 (AP).—Major Charles A. Shepard was convicted today on a charge of having fatally poisoned his second wife. The jury verdict carried a sentence of life imprisonment, specifying that capital punishment could not be imposed. . . . Major Shepard said later he was surprised at the verdict. 'I am absolutely innocent and this case will eventually be thrown out of court,' he declared" (San Francisco Call-Bulletin, December 22, 1930). Doctor Shepard formerly practiced at Needles, California.